

06441500 BAD RIVER NEAR FORT PIERRE, SD

LOCATION.--Lat 44° 19'36", long 100° 23'02", in NW¹/₄ NW¹/₄ sec.10, T.4 N., R.31 E., Stanley County, Hydrologic Unit 10140102, on right bank at downstream side of highway bridge, 2.1 mi south of Fort Pierre, 4.3 mi downstream from Willow Creek, and 6.0 mi upstream from mouth.

DRAINAGE AREA.--3,107 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year. Monthly discharge only for July 1932 to February 1934, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 856: 1929(M), 1937.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,427.83 ft above NGVD of 1929. Prior to July 10, 1951, nonrecording gage at same site and 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1927 reached a stage of 30.89 ft, from floodmarks, discharge, about 55,000 ft³/s. Flood in July 1905 reached a stage about 2 ft higher than that in April 1927.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
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	e65	6.5	7.5	4.5	e0.07	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	e60	5.0	5.5	3.1	e0.07	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	e50	4.0	3.6	3.1	e0.06	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	e45	3.2	4.7	e2.3	e0.05	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	e40	2.6	846	e1.8	e0.04	80	0.00
6	0.00	0.00	0.00	0.00	0.00	e35	2.0	340	e1.5	e0.03	e1.5	0.00
7	0.00	0.00	0.00	0.00	0.00	e34	2.1	144	e2.0	e0.02	e0.80	0.00
8	0.00	0.00	0.00	0.00	0.00	e30	1.8	742	3.6	e0.02	e0.40	0.00
9	0.00	0.00	0.00	0.00	0.00	e28	1.7	3,860	e1.6	e0.01	e0.20	0.00
10	0.00	0.00	0.00	0.00	0.00	e26	1.4	970	3.5	e0.00	e0.10	0.00
11	0.00	0.00	0.00	0.00	0.00	e30	0.83	447	e1.6	e0.00	e0.05	0.00
12	0.00	0.00	0.00	0.00	0.00	e36	0.62	274	e1.0	e0.00	e0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	e80	e0.40	191	e0.60	e0.00	e0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	e280	0.24	135	e1.9	e0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	e320	0.14	124	e1.2	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	e180	0.83	98	e0.80	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	e5.0	119	1.1	78	e0.50	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	e150	85	1.3	1,410	e0.30	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	e170	94	4.7	635	e0.20	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	e180	87	8.1	314	e0.15	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	e150	59	13	198	e0.10	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	e100	44	7.2	124	e0.08	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	e70	33	4.8	82	e0.06	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	e140	63	17	65	e0.50	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	e240	75	79	41	e0.30	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	e140	47	62	30	e0.20	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	e90	33	30	22	e0.15	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	e70	22	20	16	e0.10	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	---	14	14	12	e0.09	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	---	11	11	8.8	e0.08	0.00	0.00	0.00
31	0.00	---	0.00	0.00	---	8.6	---	6.4	---	0.00	0.00	---
TOTAL	0.00	0.00	0.00	0.00	1,505.00	2,133.6	306.56	11,234.5	36.91	0.37	83.05	0.00
MEAN	0.000	0.000	0.000	0.000	53.8	68.8	10.2	362	1.23	0.012	2.68	0.000
MAX	0.00	0.00	0.00	0.00	240	320	79	3,860	4.5	0.07	80	0.00
MIN	0.00	0.00	0.00	0.00	0.00	8.6	0.14	3.6	0.06	0.00	0.00	0.00
AC-FT	0.00	0.00	0.00	0.00	2,990	4,230	608	22,280	73	0.7	165	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2003, BY WATER YEAR (WY)

MEAN	18.8	5.65	2.38	11.7	135	520	422	410	359	80.5	48.4	36.4
MAX	295	199	51.1	434	3,436	4,480	7,306	6,663	2,567	561	706	1,027
(WY)	(1983)	(1999)	(1999)	(1997)	(1997)	(1997)	(1952)	(1942)	(1967)	(1937)	(1930)	(1999)
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	(1929)	(1929)	(1929)	(1929)	(1936)	(1934)	(1934)	(1980)	(1930)	(1930)	(1929)	(1929)

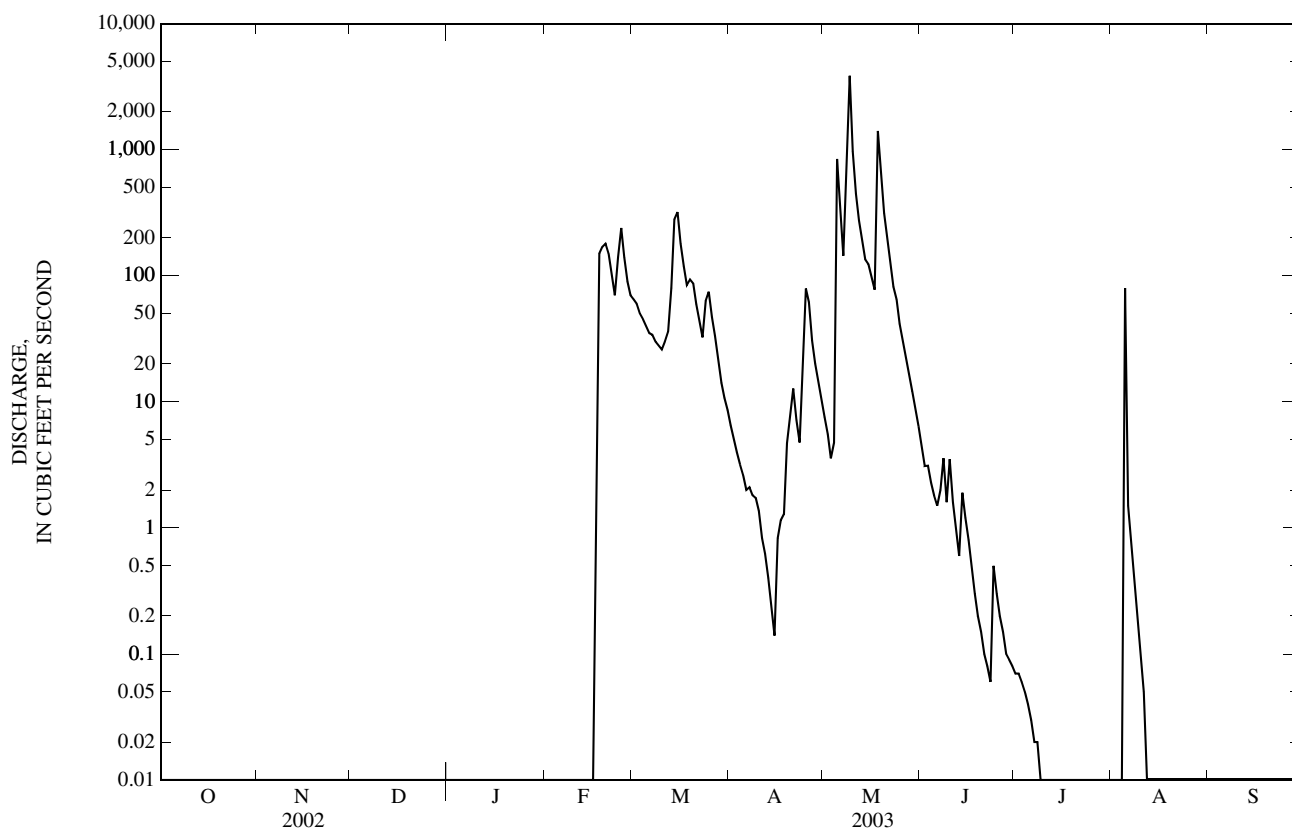
06441500 BAD RIVER NEAR FORT PIERRE, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1929 - 2003	
ANNUAL TOTAL	4,419.99		15,299.99		^a 171	
ANNUAL MEAN	12.1		41.9		1,203	
HIGHEST ANNUAL MEAN					6.07	
LOWEST ANNUAL MEAN					27,200	
HIGHEST DAILY MEAN	808	Mar 28	3,860	May 9	May 1, 1942	
LOWEST DAILY MEAN	0.00	Jun 16	0.00	Oct 1	^b 0.00 Oct 1, 1928	
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 11	0.00	Oct 1	0.00 Oct 1, 1928	
MAXIMUM PEAK FLOW			5,460	May 9	43,800 Jun 18, 1967	
MAXIMUM PEAK STAGE			13.17	May 9	29.55 Jun 18, 1967	
ANNUAL RUNOFF (AC-FT)	8,770		30,350		123,700	
10 PERCENT EXCEEDS	22		79		230	
50 PERCENT EXCEEDS	0.04		0.00		0.84	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Median of annual mean discharges, 110 ft³/s.

b No flow for long periods in most years.

c Estimated.



06441500 BAD RIVER NEAR FORT PIERRE, SD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1945 to September 1953, October 1971 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1971 to current year.

WATER TEMPERATURE: October 1972 to June 1983.

REVISED RECORDS.--WDR SD-81-1: 1979-80.

REMARKS.--Sediment discharge records fair except those for estimated daily concentrations and/or discharges, which are poor. Observer collects samples on a daily basis during most periods of open-water flow and less often during winter ice period. Flow affected by ice Feb. 17 to Mar. 16. Size analyses for suspended-sediment samples collected for low flows may be affected by dissolved solids. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, U.S. Army Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 124,000 mg/L, July 17, 1981; minimum daily mean, 0 mg/L, estimated, on many days some years.

SEDIMENT LOAD: Maximum daily, 949,000 tons, May 14, 1982; minimum daily, 0 ton on many days each year.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 39,600 mg/L, May 5; minimum daily mean, 0 mg/L, on many days.

SEDIMENT LOAD: Maximum daily, 366,000 tons, May 9; minimum daily, 0.00 ton, on many days.

 SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
 WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)
OCTOBER			NOVEMBER			DECEMBER			
1	0.00	---	---	0.00	---	---	0.00	---	---
2	0.00	---	---	0.00	---	---	0.00	---	---
3	0.00	---	---	0.00	---	---	0.00	---	---
4	0.00	---	---	0.00	---	---	0.00	---	---
5	0.00	---	---	0.00	---	---	0.00	---	---
6	0.00	---	---	0.00	---	---	0.00	---	---
7	0.00	---	---	0.00	---	---	0.00	---	---
8	0.00	---	---	0.00	---	---	0.00	---	---
9	0.00	---	---	0.00	---	---	0.00	---	---
10	0.00	---	---	0.00	---	---	0.00	---	---
11	0.00	---	---	0.00	---	---	0.00	---	---
12	0.00	---	---	0.00	---	---	0.00	---	---
13	0.00	---	---	0.00	---	---	0.00	---	---
14	0.00	---	---	0.00	---	---	0.00	---	---
15	0.00	---	---	0.00	---	---	0.00	---	---
16	0.00	---	---	0.00	---	---	0.00	---	---
17	0.00	---	---	0.00	---	---	0.00	---	---
18	0.00	---	---	0.00	---	---	0.00	---	---
19	0.00	---	---	0.00	---	---	0.00	---	---
20	0.00	---	---	0.00	---	---	0.00	---	---
21	0.00	---	---	0.00	---	---	0.00	---	---
22	0.00	---	---	0.00	---	---	0.00	---	---
23	0.00	---	---	0.00	---	---	0.00	---	---
24	0.00	---	---	0.00	---	---	0.00	---	---
25	0.00	---	---	0.00	---	---	0.00	---	---
26	0.00	---	---	0.00	---	---	0.00	---	---
27	0.00	---	---	0.00	---	---	0.00	---	---
28	0.00	---	---	0.00	---	---	0.00	---	---
29	0.00	---	---	0.00	---	---	0.00	---	---
30	0.00	---	---	0.00	---	---	0.00	---	---
31	0.00	---	---	---	---	---	0.00	---	---
TOTAL	0.00	---	0	0.00	---	0	0.00	---	0

06441500 BAD RIVER NEAR FORT PIERRE, SD—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)
JANUARY			FEBRUARY			MARCH			
1	0.00	---	---	0.00	---	---	e65	e2,040	358
2	0.00	---	---	0.00	---	---	e60	e1,920	312
3	0.00	---	---	0.00	---	---	e50	e1,810	245
4	0.00	---	---	0.00	---	---	e45	e1,690	206
5	0.00	---	---	0.00	---	---	e40	e1,580	171
6	0.00	---	---	0.00	---	---	e35	e1,460	138
7	0.00	---	---	0.00	---	---	e34	e1,350	124
8	0.00	---	---	0.00	---	---	e30	e1,230	100
9	0.00	---	---	0.00	---	---	e28	e1,120	84
10	0.00	---	---	0.00	---	---	e26	e1,020	72
11	0.00	---	---	0.00	---	---	e30	e1,050	85
12	0.00	---	---	0.00	---	---	e36	e1,110	108
13	0.00	---	---	0.00	---	---	e80	e1,230	265
14	0.00	---	---	0.00	---	---	e280	e1,370	1,030
15	0.00	---	---	0.00	---	---	e320	e1,480	1,270
16	0.00	---	---	0.00	---	---	e180	e1,450	708
17	0.00	---	---	e5.0	e384	2.6	119	e1,390	449
18	0.00	---	---	e150	934	376	85	e1,340	305
19	0.00	---	---	e170	1,600	732	94	e1,280	324
20	0.00	---	---	e180	2,560	1,240	87	e1,230	288
21	0.00	---	---	e150	e2,410	980	59	1,180	190
22	0.00	---	---	e100	e1,960	531	44	e1,100	130
23	0.00	---	---	e70	e1,620	308	33	e996	88
24	0.00	---	---	e140	e2,000	753	63	e1,160	224
25	0.00	---	---	e240	e2,420	1,560	75	e1,330	271
26	0.00	---	---	e140	e2,380	908	47	e1,140	145
27	0.00	---	---	e90	e2,270	555	33	e939	85
28	0.00	---	---	e70	e2,150	408	22	e740	44
29	0.00	---	---	---	---	---	14	e542	21
30	0.00	---	---	---	---	---	11	e344	10
31	0.00	---	---	---	---	---	8.6	163	3.8
TOTAL	0.00	---	0	1,505.00	---	8,353.6	2,133.6	---	7,853.8
APRIL			MAY			JUNE			
1	6.5	109	1.9	7.5	e212	4.4	4.5	e104	1.3
2	5.0	e94	1.3	5.5	124	1.9	3.1	110	0.92
3	4.0	e83	0.89	3.6	e106	1.0	3.1	e97	0.81
4	3.2	e72	0.62	4.7	e103	1.3	e2.3	e81	0.50
5	2.6	e61	0.43	846	39,600	116,000	e1.8	e66	0.32
6	2.0	e50	0.27	340	32,800	30,300	e1.5	e56	0.23
7	2.1	e38	0.22	144	12,600	5,000	e2.0	e85	0.46
8	1.8	29	0.14	742	e22,400	44,600	3.6	e120	1.1
9	1.7	e35	0.16	3,860	33,400	366,000	e1.6	151	0.65
10	1.4	e43	0.16	970	e13,800	38,200	3.5	e152	1.4
11	0.83	e51	0.11	447	6,360	8,050	e1.6	e147	0.64
12	0.62	57	0.09	274	2,750	2,120	e1.0	e142	0.39
13	e0.40	e49	0.05	191	674	350	e0.60	e137	0.22
14	0.24	42	0.03	135	e437	161	e1.9	e132	0.67
15	0.14	82	0.03	124	223	74	e1.2	e126	0.41
16	0.83	e93	0.21	98	138	37	e0.80	e121	0.26
17	1.1	93	0.29	78	e112	23	e0.50	e116	0.16
18	1.3	e95	0.33	1,410	29,600	144,000	e0.30	e111	0.09
19	4.7	e97	1.2	635	25,400	45,700	e0.20	e106	0.06
20	8.1	e178	6.5	314	e15,100	13,000	e0.15	e101	0.04
21	13	e434	15	198	e7,510	4,180	e0.10	e96	0.03
22	7.2	e329	6.4	124	1,070	406	e0.08	e91	0.02
23	4.8	e224	2.9	82	141	32	e0.06	e86	0.01
24	17	e160	8.4	65	113	20	e0.50	e80	0.11
25	79	1,070	281	41	82	9.4	e0.30	e75	0.06
26	62	1,260	217	30	54	4.5	e0.20	e70	0.04
27	30	e834	70	22	e54	3.2	e0.15	e65	0.03
28	20	533	29	16	e64	2.8	e0.10	e60	0.02
29	14	e410	16	12	e74	2.4	e0.09	e55	0.01
30	11	e311	9.1	8.8	e84	2.0	e0.08	e50	0.01
31	---	---	---	6.4	e94	1.6	---	---	---
TOTAL	306.56	---	669.73	11,234.5	---	818,287.5	36.91	---	10.97

MISSOURI-FORT RANDALL RIVER BASIN

06441500 BAD RIVER NEAR FORT PIERRE, SD—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)
	JULY			AUGUST			SEPTEMBER		
1	e0.07	e45	0.00	0.00	---	0.00	0.00	---	---
2	e0.07	40	0.00	0.00	---	0.00	0.00	---	---
3	e0.06	e40	0.00	0.00	---	0.00	0.00	---	---
4	e0.05	40	0.00	0.00	e7	0.00	0.00	---	---
5	e0.04	e39	0.00	80	6,260	3,820	0.00	---	---
6	e0.03	e37	0.00	e1.5	e235	0.96	0.00	---	---
7	e0.02	e35	0.00	e0.80	e161	0.35	0.00	---	---
8	e0.02	e33	0.00	e0.40	e132	0.14	0.00	---	---
9	e0.01	e31	0.00	e0.20	e103	0.06	0.00	---	---
10	e0.00	---	0.00	e0.10	e74	0.02	0.00	---	---
11	e0.00	---	0.00	e0.05	e45	0.00	0.00	---	---
12	e0.00	---	0.00	e0.00	---	---	0.00	---	---
13	e0.00	---	0.00	e0.00	---	---	0.00	---	---
14	e0.00	---	0.00	0.00	---	---	0.00	---	---
15	0.00	---	0.00	0.00	---	---	0.00	---	---
16	0.00	---	0.00	0.00	---	---	0.00	---	---
17	0.00	---	0.00	0.00	---	---	0.00	---	---
18	0.00	---	0.00	0.00	---	---	0.00	---	---
19	0.00	---	0.00	0.00	---	---	0.00	---	---
20	0.00	---	0.00	0.00	---	---	0.00	---	---
21	0.00	---	0.00	0.00	---	---	0.00	---	---
22	0.00	---	0.00	0.00	---	---	0.00	---	---
23	0.00	---	0.00	0.00	---	---	0.00	---	---
24	0.00	---	0.00	0.00	---	---	0.00	---	---
25	0.00	---	0.00	0.00	---	---	0.00	---	---
26	0.00	---	0.00	0.00	---	---	0.00	---	---
27	0.00	---	0.00	0.00	---	---	0.00	---	---
28	0.00	---	0.00	0.00	---	---	0.00	---	---
29	0.00	---	0.00	0.00	---	---	0.00	---	---
30	0.00	---	0.00	0.00	---	---	0.00	---	---
31	0.00	---	0.00	0.00	---	---	---	---	---
TOTAL	0.37	---	0.00	83.05	---	3,821.53	0.00	---	0
YEAR	15,299.99	838,997.13							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specific conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)	Suspended sediment, sieve diameter percent <.063mm (70331)
FEB 20...	1055	180	1,450	10.0	0.0	2,710	1,320	100
MAR 21...	0930	61	2,200	9.0	5.0	1,160	190	100
APR 14...	1515	0.28	2,980	26.0	22.0	35	0.03	99
JUL 02...	0930	0.07	3,550	28.0	27.5	47	0.01	92

THIS PAGE IS INTENTIONALLY BLANK

06441590 MISSOURI RIVER AT LA FRAMBOISE ISLAND, AT PIERRE, SD

LOCATION.--Lat 44° 21'07", long 100° 21'31", in NW¹/₄ SW¹/₄ NE¹/₄ sec.34, T.110 N., R.79 W., Hughes County, Hydrologic Unit 10140101, on left bank of La Framboise Island Recreation Area, 0.2 mi downstream from Bad River, 1.5 mi downstream from U.S. Highways 14 and 83, 7.8 mi downstream from Oahe Dam, and at mile 1,064.5.

PERIOD OF RECORD.--October 1988 to current year.

REVISED RECORDS.--WDR SD-90-1: Datum.

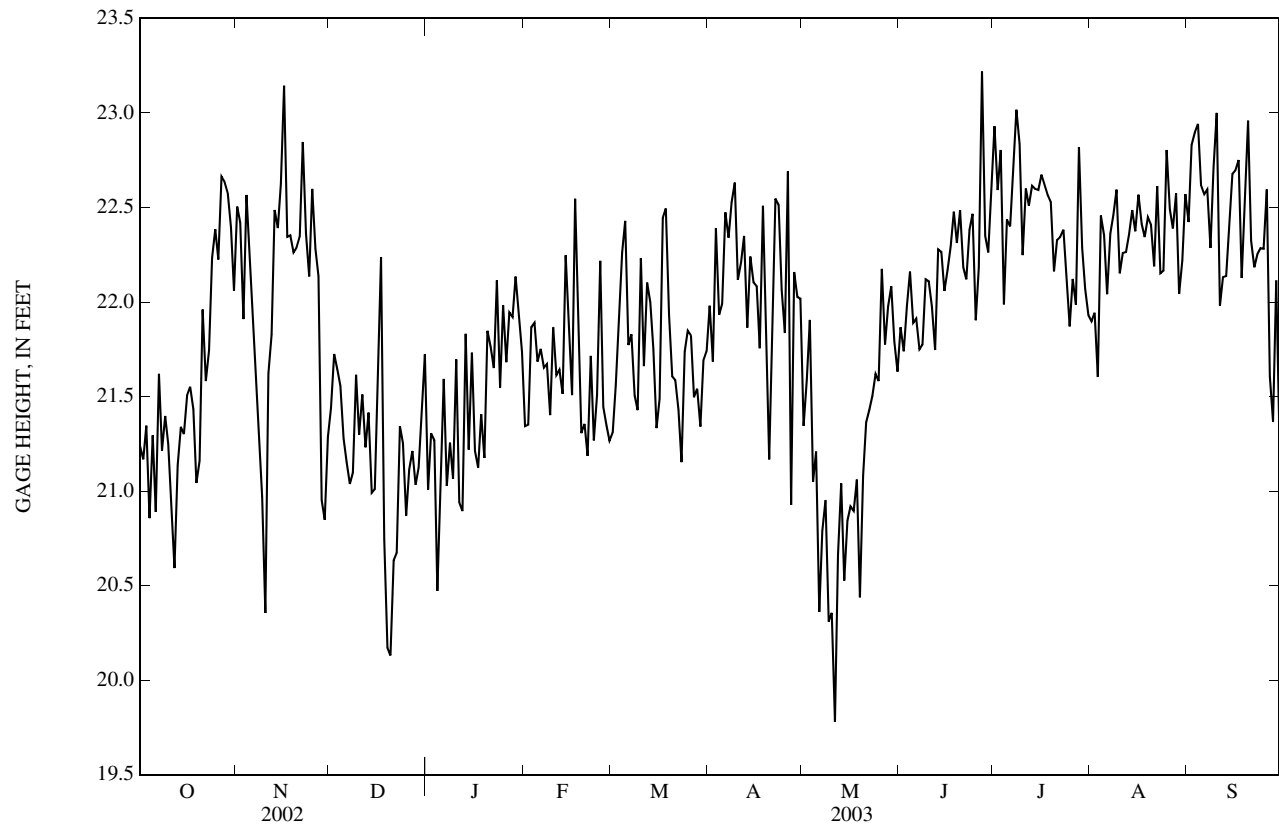
GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above NGVD of 1929.

REMARKS.--Records good. Stage regulated by Big Bend Dam approximately 80 mi downstream. Flows regulated by Oahe Dam 7.8 mi upstream. Gage heights prior to October 1988 in files of U.S. Army Corps of Engineers. U.S. Army Corps of Engineers satellite data-collection platform at station.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.24	22.50	21.44	21.01	21.34	21.31	21.98	21.34	21.87	22.93	21.90	22.42
2	21.17	22.42	21.72	21.31	21.35	21.56	21.68	21.59	21.74	22.59	21.94	22.83
3	21.35	21.91	21.64	21.27	21.87	21.94	22.39	21.90	21.98	22.80	21.60	22.90
4	20.86	22.57	21.56	20.47	21.89	22.26	21.93	21.05	22.16	21.99	22.46	22.94
5	21.29	22.21	21.28	21.04	21.68	22.43	21.99	21.21	21.89	22.44	22.35	22.62
6	20.89	21.96	21.15	21.59	21.75	21.77	22.47	20.36	21.91	22.40	22.04	22.57
7	21.62	21.63	21.04	21.03	21.65	21.83	22.34	20.79	21.75	22.76	22.36	22.60
8	21.21	21.26	21.10	21.26	21.67	21.51	22.53	20.95	21.77	23.02	22.46	22.29
9	21.40	20.97	21.61	21.06	21.40	21.43	22.63	20.31	22.12	22.84	22.59	22.71
10	21.25	20.36	21.30	21.70	21.87	22.23	22.12	20.36	22.11	22.25	22.15	23.00
11	20.96	21.62	21.51	20.94	21.61	21.66	22.21	19.78	21.97	22.60	22.26	21.98
12	20.59	21.83	21.23	20.89	21.64	22.10	22.35	20.66	21.75	22.51	22.26	22.13
13	21.14	22.49	21.41	21.83	21.51	22.00	21.86	21.04	22.28	22.61	22.36	22.14
14	21.34	22.39	20.99	21.22	22.25	21.75	22.24	20.53	22.26	22.60	22.49	22.43
15	21.30	22.63	21.01	21.73	21.87	21.33	22.10	20.84	22.06	22.59	22.37	22.68
16	21.51	23.14	21.52	21.21	21.51	21.49	22.08	20.92	22.17	22.67	22.57	22.70
17	21.55	22.34	22.24	21.12	22.55	22.44	21.76	20.89	22.29	22.62	22.41	22.75
18	21.43	22.35	20.74	21.41	22.02	22.49	22.51	21.06	22.48	22.57	22.34	22.13
19	21.04	22.26	20.17	21.17	21.31	21.93	21.75	20.44	22.31	22.53	22.45	22.47
20	21.16	22.29	20.13	21.85	21.36	21.61	21.17	21.08	22.49	22.16	22.41	22.96
21	21.96	22.35	20.63	21.76	21.19	21.59	22.03	21.36	22.18	22.33	22.19	22.32
22	21.58	22.85	20.67	21.65	21.71	21.43	22.55	21.43	22.12	22.34	22.61	22.18
23	21.74	22.36	21.34	22.11	21.27	21.15	22.51	21.50	22.38	22.38	22.15	22.25
24	22.23	22.14	21.25	21.55	21.51	21.74	22.06	21.62	22.47	22.14	22.16	22.28
25	22.39	22.60	20.87	21.98	22.22	21.85	21.84	21.58	21.90	21.87	22.80	22.28
26	22.23	22.28	21.11	21.68	21.44	21.82	22.69	22.17	22.18	22.12	22.49	22.59
27	22.66	22.14	21.21	21.95	21.35	21.50	20.93	21.78	23.22	21.99	22.39	21.61
28	22.64	20.95	21.03	21.92	21.27	21.54	22.16	21.98	22.35	22.82	22.57	21.37
29	22.58	20.85	21.12	22.13	---	21.34	22.03	22.08	22.26	22.29	22.04	22.11
30	22.40	21.29	21.41	21.92	---	21.69	22.02	21.79	22.62	22.07	22.22	21.32
31	22.06	---	21.72	21.74	---	21.74	---	21.63	---	21.93	22.57	---
MEAN	21.57	22.03	21.20	21.47	21.64	21.76	22.10	21.16	22.17	22.44	22.32	22.39
MAX	22.66	23.14	22.24	22.13	22.55	22.49	22.69	22.17	23.22	23.02	22.80	23.00
MIN	20.59	20.36	20.13	20.47	21.19	21.15	20.93	19.78	21.74	21.87	21.60	21.32

06441590 MISSOURI RIVER AT LA FRAMBOISE ISLAND, AT PIERRE, SD—Continued



06441592 MISSOURI RIVER BELOW LA FRAMBOISE ISLAND, AT PIERRE, SD

LOCATION.--Lat 44° 20'46", long 100° 19'12", in SE¹/₄ SE¹/₄ NW¹/₄ sec.10, T.110 N., R.79 W., Hughes County, Hydrologic Unit 10140101, on left bank at downstream end of La Framboise Island Recreation Area, 2.4 mi downstream from Bad River, 3.0 mi downstream from U.S. Highways 14 and 83, 9.9 mi (revised) downstream from Oahe Dam, and at mile 1,062.4.

PERIOD OF RECORD.--October 1998 to current year.

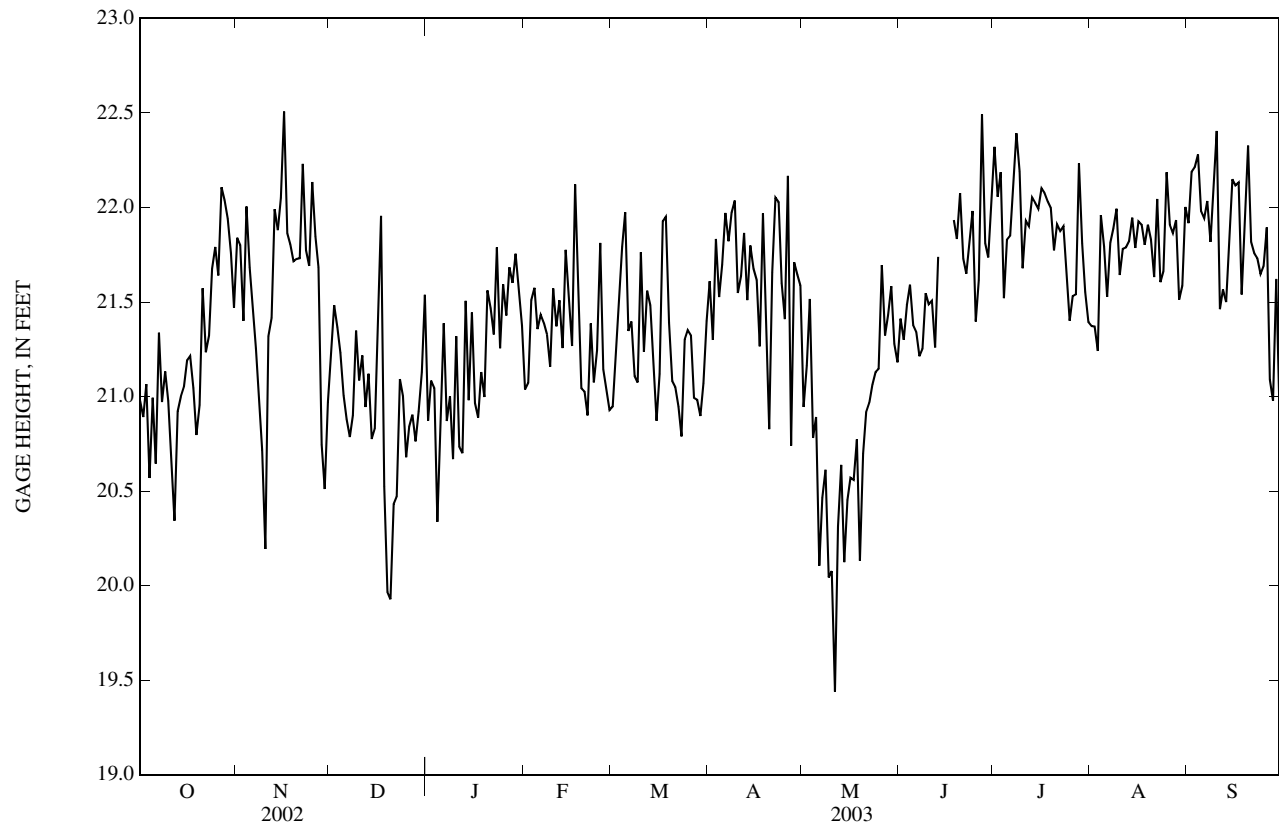
GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above NGVD of 1929.

REMARKS.--Records good. Stage regulated by Big Bend Dam approximately 78 mi downstream. Flows regulated by Oahe Dam 9.9 mi upstream. Gage heights prior to October 1998 in files of U.S. Army Corps of Engineers. U.S. Army Corps of Engineers satellite data-collection platform at station.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.98	21.84	21.21	20.87	21.04	20.95	21.61	20.94	21.41	22.32	21.37	21.92
2	20.89	21.80	21.48	21.08	21.07	21.22	21.30	21.16	21.30	22.06	21.37	22.19
3	21.07	21.40	21.37	21.05	21.51	21.55	21.83	21.52	21.49	22.19	21.24	22.21
4	20.57	22.00	21.23	20.34	21.58	21.79	21.53	20.78	21.59	21.52	21.96	22.28
5	20.99	21.68	21.01	20.86	21.36	21.97	21.70	20.89	21.38	21.83	21.79	21.98
6	20.64	21.48	20.88	21.39	21.43	21.35	21.97	20.11	21.34	21.85	21.53	21.94
7	21.34	21.25	20.79	20.87	21.39	21.40	21.82	20.46	21.21	22.13	21.81	22.03
8	20.97	20.95	20.90	21.00	21.33	21.11	21.97	20.61	21.25	22.39	21.89	21.82
9	21.13	20.72	21.35	20.67	21.16	21.07	22.04	20.04	21.55	22.19	21.99	22.13
10	20.98	20.19	21.08	21.32	21.57	21.76	21.55	20.08	21.49	21.68	21.64	22.40
11	20.69	21.32	21.22	20.73	21.37	21.24	21.64	19.44	21.51	21.93	21.78	21.46
12	20.34	21.42	20.94	20.70	21.51	21.56	21.87	20.31	21.26	21.90	21.79	21.57
13	20.92	21.99	21.12	21.51	21.26	21.48	21.51	20.64	21.74	22.05	21.82	21.50
14	21.00	21.88	20.78	20.98	21.78	21.23	21.80	20.12	---	22.03	21.95	21.86
15	21.05	22.05	20.83	21.44	21.53	20.87	21.68	20.45	---	21.99	21.79	22.15
16	21.19	22.51	21.26	20.97	21.27	21.12	21.62	20.57	---	22.10	21.93	22.12
17	21.21	21.86	21.95	20.89	22.12	21.93	21.27	20.56	---	22.08	21.91	22.13
18	21.05	21.80	20.52	21.13	21.65	21.95	21.97	20.77	21.93	22.03	21.80	21.54
19	20.80	21.71	19.97	21.00	21.04	21.39	21.27	20.13	21.83	22.00	21.91	21.87
20	20.96	21.73	19.93	21.56	21.03	21.08	20.83	20.70	22.08	21.77	21.83	22.33
21	21.57	21.73	20.43	21.47	20.90	21.05	21.66	20.92	21.73	21.91	21.63	21.82
22	21.23	22.23	20.47	21.33	21.39	20.95	22.05	20.97	21.65	21.88	22.04	21.76
23	21.32	21.77	21.09	21.79	21.08	20.79	22.03	21.06	21.81	21.90	21.60	21.73
24	21.68	21.69	21.00	21.25	21.24	21.30	21.60	21.13	21.98	21.68	21.66	21.65
25	21.79	22.13	20.68	21.59	21.81	21.35	21.41	21.15	21.40	21.40	22.19	21.69
26	21.64	21.85	20.84	21.43	21.14	21.32	22.17	21.69	21.62	21.53	21.91	21.89
27	22.11	21.68	20.90	21.68	21.04	20.99	20.74	21.32	22.49	21.54	21.86	21.09
28	22.04	20.74	20.76	21.60	20.93	20.98	21.71	21.43	21.81	22.23	21.93	20.98
29	21.94	20.51	20.92	21.76	---	20.90	21.64	21.58	21.74	21.81	21.51	21.62
30	21.76	20.97	21.13	21.57	---	21.07	21.59	21.28	22.06	21.55	21.59	20.97
31	21.47	---	21.54	21.38	---	21.40	---	21.18	---	21.39	22.00	---
MEAN	21.20	21.56	20.95	21.20	21.34	21.29	21.65	20.77	---	21.90	21.77	21.82
MAX	22.11	22.51	21.95	21.79	22.12	21.97	22.17	21.69	---	22.39	22.19	22.40
MIN	20.34	20.19	19.93	20.34	20.90	20.79	20.74	19.44	---	21.39	21.24	20.97

06441592 MISSOURI RIVER BELOW LA FRAMBOISE ISLAND, AT PIERRE, SD—Continued



06441595 MISSOURI RIVER AT FARM ISLAND, NEAR PIERRE, SD

LOCATION.--Lat 44° 20'03", long 100° 15'54", in NW¹/₄ SW¹/₄ NE¹/₄ sec.18, T.110 N., R.78 W., Hughes County, Hydrologic Unit 10140101, on left bank of Farm Island Recreation Area, 4.8 mi downstream from La Framboise gage, 4.9 mi southeast of Pierre, 5.2 mi downstream from Bad River, 13.1 mi (revised) downstream from Oahe Dam, and at mile 1,059.2.

PERIOD OF RECORD.--October 1988 to current year.

REVISED RECORDS.--WDR SD-90-1: Datum.

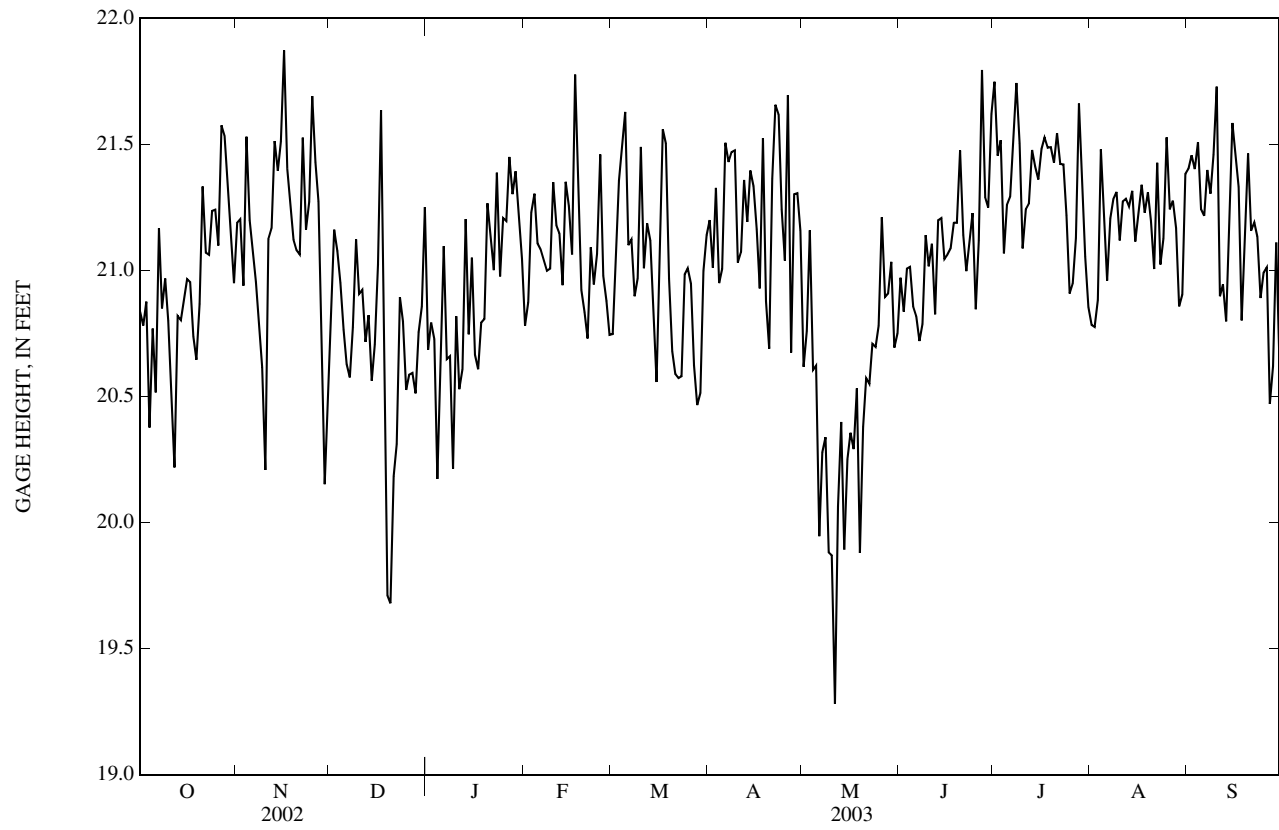
GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above NGVD of 1929.

REMARKS.--Records good. Stage regulated by Big Bend Dam approximately 75 mi downstream. Flows regulated by Oahe Dam 12.6 mi upstream. Gage heights prior to October 1988 in files of U.S. Army Corps of Engineers. U.S. Army Corps of Engineers satellite data-collection platform at station.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.84	21.19	20.91	20.69	20.78	20.75	21.20	20.62	20.97	21.75	20.78	21.40
2	20.78	21.20	21.16	20.79	20.87	21.04	21.01	20.76	20.84	21.46	20.78	21.46
3	20.88	20.94	21.08	20.73	21.23	21.36	21.33	21.16	21.01	21.52	20.88	21.40
4	20.38	21.53	20.95	20.17	21.30	21.50	20.95	20.61	21.01	21.07	21.48	21.51
5	20.77	21.20	20.77	20.64	21.11	21.63	21.01	20.62	20.86	21.26	21.18	21.24
6	20.52	21.09	20.63	21.10	21.08	21.10	21.51	19.95	20.82	21.29	20.96	21.22
7	21.17	20.95	20.58	20.65	21.04	21.12	21.43	20.28	20.72	21.49	21.21	21.40
8	20.85	20.77	20.78	20.66	21.00	20.90	21.47	20.34	20.79	21.74	21.28	21.30
9	20.97	20.62	21.12	20.21	21.01	20.97	21.48	19.88	21.14	21.50	21.31	21.46
10	20.80	20.21	20.91	20.82	21.35	21.49	21.03	19.87	21.02	21.09	21.12	21.73
11	20.49	21.12	20.92	20.53	21.18	21.01	21.07	19.28	21.11	21.24	21.27	20.90
12	20.22	21.17	20.72	20.61	21.15	21.19	21.36	20.06	20.83	21.27	21.28	20.94
13	20.82	21.51	20.82	21.20	20.94	21.12	21.19	20.40	21.20	21.48	21.25	20.80
14	20.80	21.40	20.56	20.75	21.35	20.82	21.40	19.89	21.21	21.41	21.32	21.25
15	20.89	21.51	20.71	21.05	21.26	20.56	21.33	20.25	21.05	21.36	21.11	21.58
16	20.97	21.87	21.02	20.67	21.06	20.90	21.16	20.36	21.06	21.48	21.22	21.47
17	20.95	21.40	21.64	20.61	21.78	21.56	20.93	20.29	21.09	21.53	21.34	21.33
18	20.74	21.26	20.34	20.79	21.38	21.50	21.52	20.53	21.19	21.49	21.23	20.80
19	20.65	21.12	19.71	20.81	20.92	20.97	20.88	19.88	21.19	21.49	21.31	21.11
20	20.87	21.08	19.68	21.27	20.83	20.68	20.69	20.38	21.48	21.43	21.20	21.46
21	21.33	21.06	20.18	21.13	20.73	20.59	21.36	20.57	21.14	21.54	21.01	21.16
22	21.07	21.53	20.31	21.00	21.09	20.57	21.66	20.55	21.00	21.42	21.43	21.19
23	21.06	21.16	20.89	21.39	20.94	20.58	21.62	20.71	21.12	21.42	21.02	21.13
24	21.24	21.27	20.80	20.98	21.07	20.98	21.24	20.70	21.23	21.22	21.13	20.89
25	21.24	21.69	20.53	21.21	21.46	21.01	21.04	20.78	20.85	20.91	21.53	20.99
26	21.10	21.43	20.59	21.20	20.98	20.95	21.70	21.21	21.12	20.95	21.24	21.01
27	21.58	21.27	20.59	21.45	20.88	20.62	20.67	20.90	21.79	21.13	21.28	20.47
28	21.53	20.59	20.51	21.30	20.74	20.47	21.30	20.91	21.29	21.66	21.17	20.62
29	21.36	20.15	20.75	21.39	---	20.51	21.31	21.03	21.25	21.33	20.86	21.11
30	21.16	20.63	20.86	21.22	---	21.00	21.16	20.69	21.62	21.06	20.90	20.66
31	20.95	---	21.25	21.05	---	21.14	---	20.75	---	20.85	21.38	---
MEAN	20.93	21.13	20.72	20.91	21.09	20.99	21.23	20.46	21.10	21.35	21.18	21.17
MAX	21.58	21.87	21.64	21.45	21.78	21.63	21.70	21.21	21.79	21.75	21.53	21.73
MIN	20.22	20.15	19.68	20.17	20.73	20.47	20.67	19.28	20.72	20.85	20.78	20.47

06441595 MISSOURI RIVER AT FARM ISLAND, NEAR PIERRE, SD—Continued



06442700 LAKE SHARPE NEAR FORT THOMPSON, SD

LOCATION.--Lat 44°02'18", long 99°26'45", in SE $\frac{1}{4}$ sec.27, T.107 N., R.72 W., Lyman County, Hydrologic Unit 10140101, at left approach wall of powerhouse at Big Bend Dam on Missouri River, 2.5 mi south of Fort Thompson, and at mile 987.4.

DRAINAGE AREA.--249,300 mi², approximately.

PERIOD OF RECORD.--July 1963 to current year (monthend contents only).

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929.

REMARKS.--Reservoir is formed by earthfill dam; closure made July 1963; intentional storage began November 1963. Maximum capacity, 1,874,000 acre-ft below elevation, 1,423.0 ft (top of spillway gates). Normal maximum, 1,697,000 acre-ft below elevation 1,422.0 ft. Inactive storage, 1,424,000 acre-ft below elevation 1,415.0 ft. Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of a concrete chute with flat crest at elevation 1,385.0 ft surmounted by 8 taintor gates, each 40 by 38 ft; design capacity, 390,000 ft³/s. Normal releases are through 8 power units (completed in July 1966), with a generating capacity of 58,500 kilowatts each. Maximum release through powerplant about 100,000 ft³/s. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,829,000 acre-ft, Apr. 22, 1971, affected by wind; maximum elevation, 1,422.1 ft, June 4, 1991; minimum since initial filling, 1,417,000 acre-ft, Oct. 24, 1996.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,744,000 acre-ft, July 20; minimum contents, 1,650,000 acre-ft, Sept. 26.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,420.84	1,727,000	--
Oct. 31	1,420.04	1,689,000	-38,000
Nov. 30	1,420.45	1,712,000	+23,000
Dec. 31	1,420.57	1,722,000	+10,000
CAL YR 2002	--	--	+4,000
Jan. 31	1,420.34	1,701,000	-21,000
Feb. 28	1,420.21	1,700,000	-1,000
Mar. 31	1,420.64	1,721,000	+21,000
Apr. 30	1,420.27	1,703,000	-18,000
May 31	1,419.98	1,681,000	-22,000
June 30	1,420.35	1,705,000	+24,000
July 31	1,419.79	1,682,000	-23,000
Aug. 31	1,420.40	1,707,000	+25,000
Sept. 30	1,420.15	1,693,000	-14,000
WTR YR 2003	--	--	-34,000

NOTE.--LAKE FROZEN OVER FEB. 5 TO MAR. 25.

THIS PAGE IS INTENTIONALLY BLANK

06442718 CAMPBELL CREEK NEAR LEE'S CORNER, SD

LOCATION.--Lat 44° 04'39", long 99° 22'51", in NW¹/₄ NE¹/₄ NW¹/₄ sec.17, T.107 N., R.71 W., Buffalo County, Hydrologic Unit 10140101, on left bank at downstream side of bridge on State Highway 34, 2.8 mi east of Fort Thompson, and 5.4 mi upstream from high-water line of Lake Francis Case.

DRAINAGE AREA.--54.1 mi².

PERIOD OF RECORD.--October 1987 to September 2003 (discontinued).

REVISED RECORDS.--WDR SD-91-1: 1988-90(P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,440.32 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	e0.02	e0.01	e0.00	e0.00	0.17	0.28	0.02	0.00	0.00	0.00
2	0.00	0.00	e0.02	e0.02	e0.00	e0.00	0.16	0.23	0.10	0.00	0.00	0.00
3	0.00	0.00	e0.01	e0.02	e0.00	e0.00	0.21	0.23	0.15	0.00	0.00	0.00
4	0.00	0.00	e0.01	e0.01	e0.00	e0.00	0.20	0.47	0.15	0.10	0.04	0.00
5	0.00	0.00	e0.01	e0.01	e0.00	e0.00	0.15	0.34	0.06	0.11	0.17	0.00
6	0.00	0.00	e0.01	e0.02	e0.00	e0.00	0.17	0.24	0.03	0.00	0.00	0.00
7	0.00	0.00	e0.01	e0.01	e0.00	e0.00	0.26	0.17	0.01	0.00	0.00	0.00
8	0.00	0.00	e0.01	e0.01	e0.00	e0.00	0.20	7.1	0.01	0.01	0.00	0.00
9	0.00	0.00	e0.01	e0.00	e0.00	e0.00	0.13	3.3	0.00	3.0	0.00	0.00
10	0.00	0.00	e0.01	e0.00	e0.00	e0.00	0.11	0.39	0.01	0.06	0.00	0.00
11	0.00	0.00	e0.01	e0.00	e0.00	e0.00	0.04	0.27	0.00	0.00	0.00	0.00
12	0.00	0.00	e0.02	e0.00	e0.00	e0.00	0.04	0.20	0.06	0.00	0.00	0.00
13	0.00	0.00	e0.02	e0.00	e0.00	e0.10	0.04	0.22	0.00	0.00	0.00	0.00
14	0.00	0.00	e0.02	e0.00	e0.00	e1.0	0.05	0.22	0.00	0.00	0.00	0.00
15	0.00	0.00	e0.03	e0.00	e0.00	e4.0	0.07	0.20	0.00	0.00	0.00	0.00
16	0.00	0.00	e0.03	e0.00	e0.00	e3.0	0.12	0.17	0.00	0.00	0.00	0.00
17	0.00	0.00	e0.03	e0.00	e0.00	e2.0	0.11	0.14	0.00	0.00	0.00	0.00
18	0.00	0.00	e0.03	e0.00	e0.00	e1.5	0.41	0.14	0.00	0.00	0.00	0.00
19	0.00	0.00	e0.02	e0.00	e0.00	e1.1	0.30	0.12	0.00	0.00	0.00	0.00
20	0.00	0.00	e0.01	e0.00	e0.00	e0.90	0.25	0.05	0.00	0.00	0.00	0.00
21	0.00	0.00	e0.01	e0.00	e0.00	e0.80	0.22	0.05	0.00	0.00	0.00	0.00
22	0.00	0.00	e0.01	e0.00	e0.00	e0.70	0.13	0.07	0.00	0.00	0.00	0.00
23	0.00	0.00	e0.01	e0.00	e0.00	0.55	0.17	0.09	0.00	0.00	0.00	0.00
24	0.00	0.00	e0.01	e0.00	e0.00	0.49	0.54	0.10	3.3	0.00	0.00	0.00
25	0.00	0.00	e0.02	e0.00	e0.00	0.35	0.38	0.06	4.5	0.00	0.00	0.00
26	0.00	0.00	e0.02	e0.00	e0.00	0.29	0.17	0.04	0.18	0.00	0.00	0.00
27	0.00	0.00	e0.02	e0.00	e0.00	0.23	0.14	0.02	0.01	0.00	0.00	0.00
28	0.00	0.00	e0.01	e0.00	e0.00	0.50	0.13	0.02	0.00	0.00	0.00	0.00
29	0.00	e0.01	e0.01	e0.00	---	0.35	0.36	0.00	0.00	0.00	0.00	0.00
30	0.00	e0.02	e0.01	e0.00	---	0.26	0.41	0.01	0.00	0.00	0.00	0.00
31	0.00	---	e0.01	e0.00	---	0.16	---	0.00	---	0.00	0.00	---
TOTAL	0.00	0.03	0.48	0.11	0.00	18.28	5.84	14.94	8.59	3.28	0.21	0.00
MEAN	0.000	0.001	0.015	0.004	0.000	0.59	0.19	0.48	0.29	0.11	0.007	0.000
MAX	0.00	0.02	0.03	0.02	0.00	4.0	0.54	7.1	4.5	3.0	0.17	0.00
MIN	0.00	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
AC-FT	0.00	0.06	1.0	0.2	0.00	36	12	30	17	6.5	0.4	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2003, BY WATER YEAR (WY)

MEAN	2.43	1.32	0.17	0.14	3.69	20.2	15.9	23.6	11.2	5.01	0.99	1.25
MAX	18.7	17.1	1.46	0.78	15.3	117	95.9	143	79.7	57.4	12.3	11.7
(WY)	(1999)	(1999)	(1999)	(1992)	(1992)	(1997)	(1995)	(1999)	(1997)	(1993)	(1999)	(1999)
MIN	0.000	0.000	0.000	0.000	0.000	0.18	0.19	0.11	0.018	0.000	0.000	0.000
(WY)	(2003)	(1989)	(1988)	(1988)	(1989)	(1991)	(2003)	(1992)	(1989)	(2000)	(1988)	(1988)

06442718 CAMPBELL CREEK NEAR LEE'S CORNER, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1988 - 2003	
ANNUAL TOTAL	110.75		51.76		^a 7.17	
ANNUAL MEAN	0.30		0.14		24.3	
HIGHEST ANNUAL MEAN					0.14	
LOWEST ANNUAL MEAN					1,570	
HIGHEST DAILY MEAN	15	Mar 28	7.1	May 8	0.00	May 10, 1999
LOWEST DAILY MEAN	0.00	Jun 17	0.00	Oct 1	^b 0.00	Oct 1, 1987
ANNUAL SEVEN-DAY MINIMUM	0.00	Jun 24	0.00	Oct 1	0.00	Oct 1, 1987
MAXIMUM PEAK FLOW			^c 38	May 8	3,280	May 10, 1999
MAXIMUM PEAK STAGE			^d 3.84	Mar 12	15.03	May 10, 1999
ANNUAL RUNOFF (AC-FT)	220		103		5,200	
10 PERCENT EXCEEDS	0.57		0.23		4.8	
50 PERCENT EXCEEDS	0.01		0.00		0.08	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

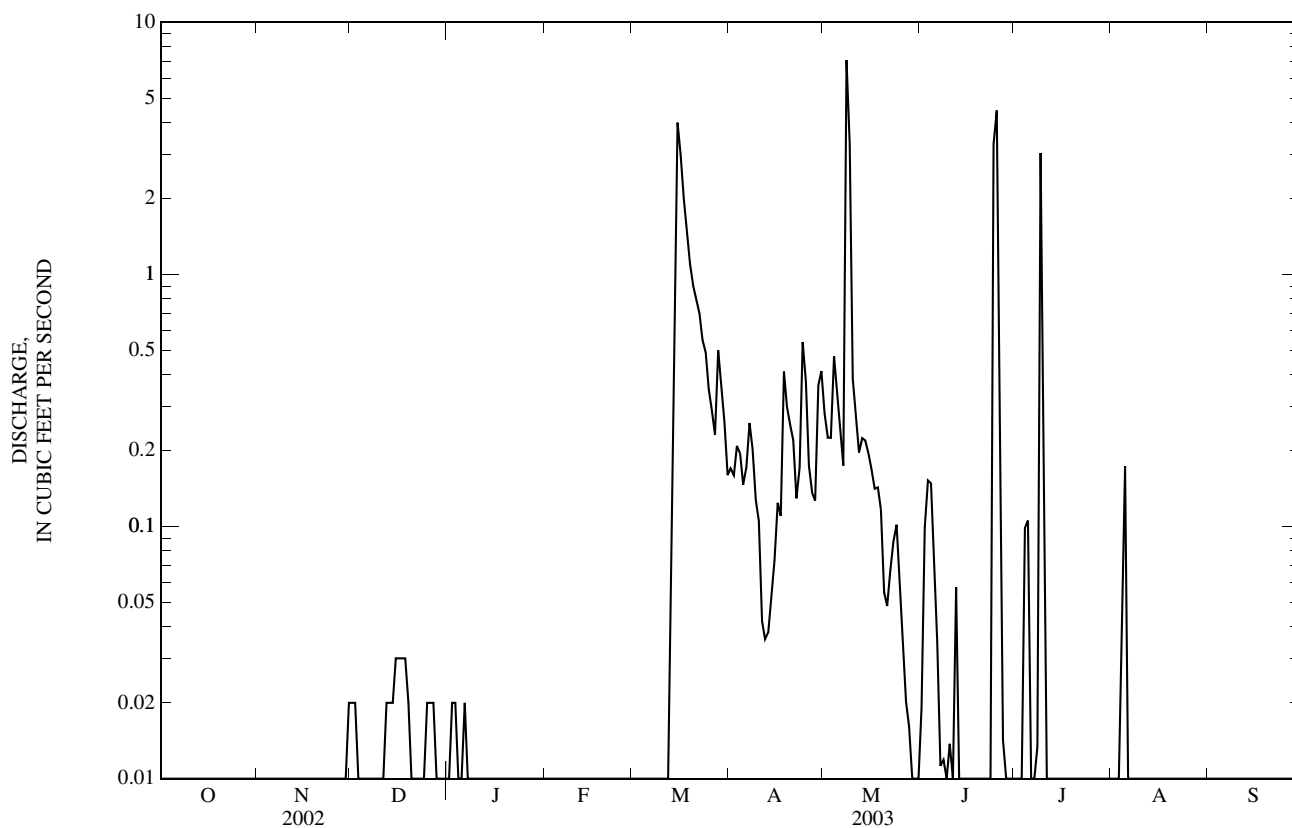
a Median of annual mean discharges, 5.5 ft³/s.

b No flow for long periods in most years.

c Gage height, 3.06 ft.

d Backwater from ice.

e Estimated.



06442996 LAKE FRANCIS CASE (AMERICAN CREEK BAY) AT CHAMBERLAIN, SD

LOCATION.--Lat 43° 48' 58", long 099° 19' 37", in NW¹/₄ NE¹/₄ NW¹/₄ (revised) sec.15, T.104 N., R.71 W., Brule County, Hydrologic Unit 10140101, on right bank of American Creek Bay and left bank of Lake Francis Case 10 ft downstream of Highway 50 bridge over American Creek Bay, 0.5 mi upstream from intersection of I-90 and State Highway 50 Business Loop, 1.6 mi upstream from Lewis and Clark Memorial Bridge, and at mile 967.5.

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,300.00 ft above NGVD of 1929. Prior to Oct. 1, 1993, at datum 0.24 ft higher.

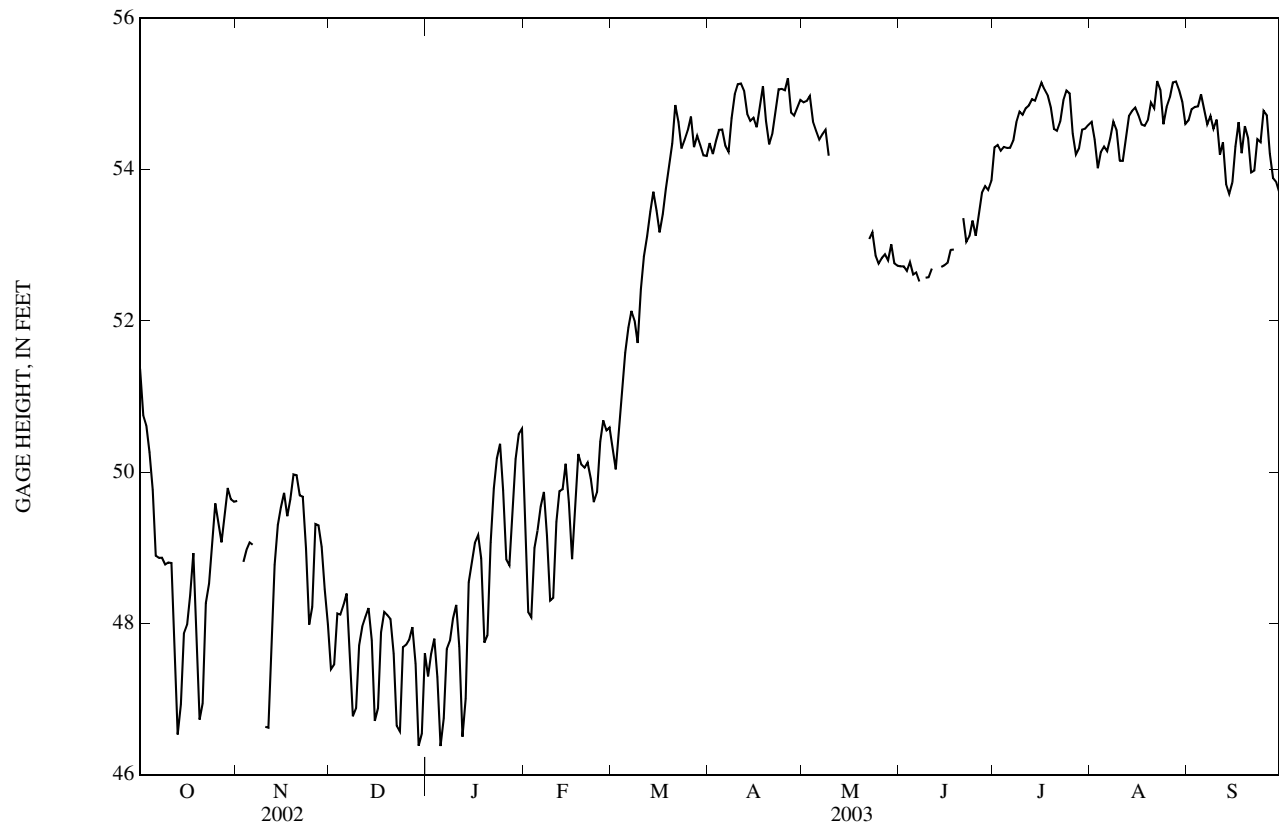
REMARKS.--Records fair. Stage regulated by Ft. Randall Reservoir. Gage heights prior to October 1988 in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51.37	49.62	47.39	47.30	49.55	50.29	54.35	54.89	52.72	54.29	54.63	54.65
2	50.75	---	47.46	47.60	48.15	50.04	54.21	54.91	52.72	54.32	54.40	54.80
3	50.62	48.81	48.13	47.80	48.08	e50.56	54.38	54.98	52.66	54.25	54.02	54.83
4	50.26	48.97	48.11	47.29	49.00	e51.06	54.53	54.63	52.78	54.30	54.23	54.84
5	49.77	49.07	48.24	46.38	49.23	e51.58	54.53	54.52	52.61	54.29	54.31	54.99
6	48.90	49.04	48.39	46.75	49.55	e51.91	54.32	54.40	52.64	54.29	54.24	54.78
7	48.87	---	47.65	47.66	49.74	e52.13	54.24	54.47	52.52	54.39	54.42	54.60
8	48.87	---	46.77	47.77	49.16	e52.00	54.68	54.53	---	54.63	54.64	54.71
9	48.78	---	46.88	48.07	48.30	e51.71	55.00	54.18	52.57	54.77	54.53	54.54
10	48.81	46.63	47.71	48.24	48.34	e52.42	55.13	---	52.58	54.73	54.12	54.66
11	48.80	46.62	47.96	47.69	49.34	e52.85	55.14	---	52.69	54.81	54.12	54.20
12	47.83	47.78	48.09	46.50	49.75	e53.12	55.04	---	---	54.85	54.43	54.36
13	46.53	48.77	48.20	47.00	49.77	53.44	54.74	---	---	54.93	54.71	53.81
14	46.93	49.30	47.78	48.54	50.11	53.71	54.65	---	52.71	54.91	54.78	53.68
15	47.87	49.53	46.71	48.82	49.60	53.46	54.69	---	52.73	55.03	54.82	53.83
16	47.98	49.72	46.88	49.07	48.85	53.17	54.56	---	52.77	55.15	54.72	54.31
17	48.37	49.42	47.88	49.17	49.51	53.41	54.82	---	52.94	55.06	54.60	54.63
18	48.93	49.64	48.15	48.86	50.24	53.74	55.10	---	52.94	54.98	54.58	54.22
19	47.96	49.97	48.11	47.74	50.10	54.03	54.64	---	---	54.82	54.66	54.57
20	46.73	49.96	48.06	47.84	50.06	54.34	54.33	---	---	54.54	54.89	54.42
21	46.94	49.69	47.60	49.07	50.13	54.85	54.47	---	53.36	54.51	54.81	53.96
22	48.27	49.67	46.65	49.79	49.91	54.63	54.76	53.08	53.05	54.63	55.17	53.99
23	48.52	48.99	46.57	50.18	49.60	54.28	55.06	53.17	53.12	54.92	55.06	54.40
24	49.08	47.98	47.68	50.37	49.73	54.39	55.07	52.87	53.33	55.04	54.60	54.36
25	49.59	48.22	47.72	49.76	50.40	54.52	55.05	52.76	53.13	55.01	54.83	54.78
26	49.32	49.31	47.79	48.84	50.68	54.70	55.21	52.83	53.40	54.48	54.95	54.72
27	49.07	49.30	47.95	48.77	50.55	54.30	54.75	52.88	53.69	54.20	55.15	54.21
28	49.45	49.01	47.46	49.56	50.59	54.45	54.71	52.80	53.78	54.28	55.16	53.89
29	49.79	48.45	46.38	50.17	---	54.32	54.82	53.01	53.73	54.53	55.05	53.84
30	49.64	47.99	46.54	50.51	---	54.19	54.92	52.76	53.85	54.54	54.90	53.70
31	49.61	---	47.61	50.58	---	54.18	---	52.73	---	54.59	54.60	---
MEAN	48.85	---	47.56	48.51	49.57	53.15	54.73	---	---	54.65	54.65	54.38
MAX	51.37	---	48.39	50.58	50.68	54.85	55.21	---	---	55.15	55.17	54.99
MIN	46.53	---	46.38	46.38	48.08	50.04	54.21	---	---	54.20	54.02	53.68

e Estimated

06442996 LAKE FRANCIS CASE (AMERICAN CREEK BAY) AT CHAMBERLAIN, SD—Continued



06445685 WHITE RIVER NEAR NEBRASKA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 43°00'47", long 102°50'07", in NE¹/₄ SW¹/₄ NE¹/₄ sec.15, T.35 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on left bank 1.0 mi north of Nebraska-South Dakota State line, and 4.3 mi south of Slim Butte.

DRAINAGE AREA.--1,440 mi², approximately.

PERIOD OF RECORD.--October 1987 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,030 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	e2.0	5.7	10	22	e13	22	45	36	24	0.67	0.00
2	2.1	4.0	7.5	11	24	e13	18	49	36	25	0.73	0.00
3	2.3	4.2	11	11	19	e14	17	103	36	24	0.68	0.00
4	2.1	3.8	8.2	12	22	e13	16	79	36	21	0.57	0.00
5	1.8	3.6	e8.1	11	21	e13	15	61	40	17	0.48	0.00
6	2.7	3.8	e7.9	13	18	e14	15	50	41	15	0.35	0.01
7	2.0	4.2	e7.5	14	18	e16	14	45	40	14	0.34	0.33
8	2.0	4.4	7.3	14	15	e14	14	44	33	13	1.2	0.52
9	2.3	4.7	8.1	14	e14	e12	14	99	25	12	0.81	2.7
10	2.3	4.8	7.3	12	e13	e12	15	89	22	8.5	0.48	19
11	1.9	5.4	7.1	10	e12	e12	16	150	33	8.1	0.27	27
12	2.2	4.8	7.0	7.3	e14	e20	20	125	28	7.6	0.19	58
13	2.5	4.6	7.5	6.5	22	29	19	90	56	5.7	0.15	33
14	2.4	4.4	7.6	6.4	26	30	28	82	100	4.1	0.10	14
15	1.8	4.1	8.3	e5.5	24	40	24	58	47	3.7	0.06	9.3
16	1.7	3.9	8.8	e5.0	24	38	23	50	30	2.9	0.07	7.8
17	1.7	4.3	9.3	e4.0	23	35	17	48	75	2.3	0.10	10
18	1.9	4.2	9.0	e3.8	22	46	17	46	69	1.6	0.60	16
19	2.1	4.0	8.3	e6.0	30	48	17	45	51	1.2	0.38	15
20	2.6	3.9	6.5	e8.0	24	48	20	70	106	0.98	0.25	16
21	2.3	3.7	5.5	e6.0	22	64	20	79	91	1.8	0.35	20
22	2.1	3.7	4.8	e5.0	21	73	21	61	52	1.9	0.22	25
23	e2.0	e3.5	3.4	e5.0	e19	61	20	58	44	2.7	0.15	23
24	e2.0	e3.5	3.5	e4.8	e18	38	19	52	39	3.4	0.12	18
25	e2.0	e3.4	4.4	e4.8	e16	26	19	48	40	2.7	0.09	17
26	2.3	3.3	5.4	e4.7	e14	21	19	46	39	2.3	0.08	16
27	2.8	3.2	5.5	e9.0	e12	20	18	45	39	2.3	0.05	15
28	2.9	3.6	5.9	e10	e12	19	18	43	39	2.2	0.06	14
29	e2.6	4.7	5.7	21	---	18	18	42	31	1.5	0.04	14
30	e2.0	5.2	6.7	22	---	23	17	39	27	1.2	0.03	13
31	e2.0	---	8.3	18	---	37	---	34	---	0.83	0.02	---
TOTAL	67.6	120.9	217.1	294.8	541	880	550	1,975	1,381	234.51	9.69	403.66
MEAN	2.18	4.03	7.00	9.51	19.3	28.4	18.3	63.7	46.0	7.56	0.31	13.5
MAX	2.9	5.4	11	22	30	73	28	150	106	25	1.2	58
MIN	1.7	2.0	3.4	3.8	12	12	14	34	22	0.83	0.02	0.00
AC-FT	134	240	431	585	1,070	1,750	1,090	3,920	2,740	465	19	801

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2003, BY WATER YEAR (WY)

	MEAN	10.8	14.4	17.2	26.4	61.1	82.4	76.4	109	95.4	29.5	12.7	11.6
MAX	29.4	45.1	54.9	96.1	186	297	303	514	360	78.3	42.9	33.8	
(WY)	(1994)	(1994)	(1994)	(1998)	(1997)	(1993)	(2000)	(1991)	(1997)	(2001)	(1997)	(1999)	
MIN	2.07	3.31	3.35	1.53	1.82	5.02	18.3	19.5	11.6	0.56	0.082	2.08	
(WY)	(1991)	(1991)	(1991)	(1991)	(1991)	(1991)	(2003)	(1992)	(1989)	(2002)	(2002)	(1994)	

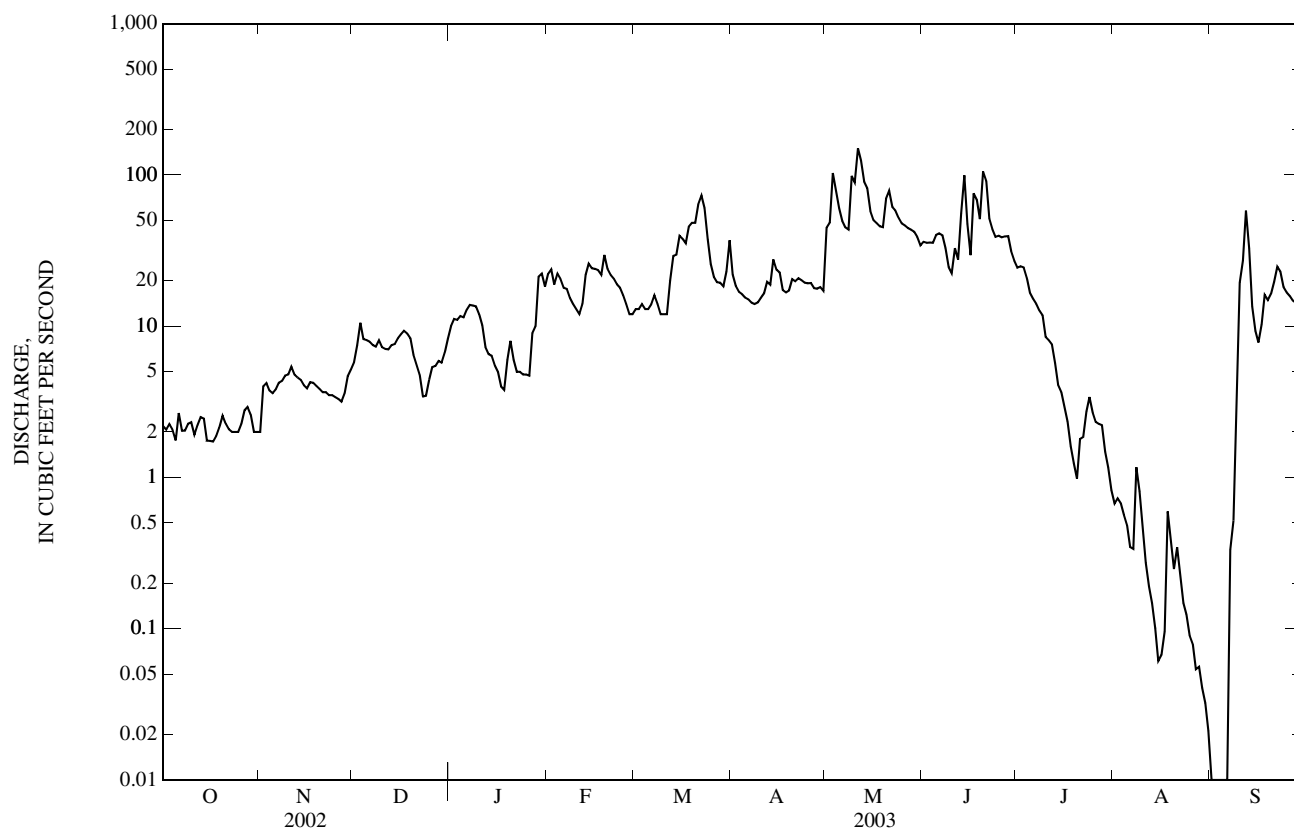
06445685 WHITE RIVER NEAR NEBRASKA-SOUTH DAKOTA STATE LINE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1988 - 2003	
ANNUAL TOTAL	7,050.06		6,675.26		^a 45.4	
ANNUAL MEAN	19.3		18.3		92.9	
HIGHEST ANNUAL MEAN					14.2	
LOWEST ANNUAL MEAN					1,910	
HIGHEST DAILY MEAN	260	Apr 2	150	May 11	1,910	May 12, 1991
LOWEST DAILY MEAN	0.00	Jul 24	0.00	Sep 1-5	^b 0.00	Jul 13, 1989
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 24	0.00	Aug 31	0.00	Aug 3, 1989
MAXIMUM PEAK FLOW			199	May 11	3,820	May 12, 1991
MAXIMUM PEAK STAGE			6.10	May 11	19.07	May 12, 1991
ANNUAL RUNOFF (AC-FT)	13,980		13,240		32,920	
10 PERCENT EXCEEDS	49		46		90	
50 PERCENT EXCEEDS	8.2		12		18	
90 PERCENT EXCEEDS	0.03		0.71		3.5	

a Median of annual mean discharges, 45 ft³/s.

b No flow at times in most years.

c Estimated.



06446000 WHITE RIVER NEAR OGLALA, SD

LOCATION.--Lat 43° 15'17", long 102° 49'29", in SW¹/₄ NE¹/₄ sec.24, T.38 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on right bank at downstream side of bridge, 3.0 mi downstream from Blacktail Creek, and 7.0 mi northwest of Oglala.

DRAINAGE AREA.--2,200 mi², approximately.

PERIOD OF RECORD.--May 1943 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,853.54 ft above NGVD of 1929. Prior to May 6, 1947, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some diversions for irrigation upstream from 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.05	e0.00	e3.5	5.1	e28	e30	43	46	41	32	0.00	0.00
2	0.01	e1.5	e5.0	5.4	e31	e30	43	49	42	29	0.00	0.00
3	0.00	e2.0	e9.0	5.8	e30	e31	40	59	42	24	0.00	0.00
4	0.03	e1.9	6.2	6.5	e33	e31	38	78	41	24	0.00	0.00
5	0.05	e1.6	7.7	7.4	e33	e31	37	100	41	19	0.00	0.00
6	0.09	e1.7	8.3	8.4	e32	e32	37	70	41	15	0.00	0.00
7	0.02	e2.0	8.1	8.6	e32	e35	37	61	43	13	0.00	0.00
8	e0.01	e2.3	8.9	8.8	e31	e38	37	58	43	10	0.00	0.00
9	e0.25	e2.5	7.8	9.5	e30	e39	36	79	41	9.0	0.00	0.00
10	e0.40	e2.6	7.6	e11	e29	e37	35	86	36	6.9	0.00	0.00
11	e0.05	e3.0	8.0	e10	e28	e35	35	110	34	7.5	0.00	0.00
12	e0.01	e3.0	7.9	e9.1	e31	e42	35	121	35	4.4	0.00	0.00
13	e0.30	e2.6	7.6	e8.0	e37	e50	36	149	38	2.4	0.00	4.0
14	e0.50	e2.5	7.7	e7.7	38	56	38	102	37	4.5	0.00	35
15	e0.00	e2.2	8.6	e6.8	38	52	37	90	82	6.1	0.00	12
16	e0.00	e2.0	8.9	e6.5	40	59	40	71	65	4.8	0.00	6.5
17	e0.00	e2.2	9.3	e6.4	46	60	39	59	57	4.1	0.00	5.5
18	e0.00	e2.1	9.7	e6.7	47	72	39	56	95	1.1	0.00	5.8
19	e0.00	e2.0	8.9	e7.0	49	104	39	57	82	1.3	0.00	8.4
20	e0.50	e1.7	8.6	e7.1	49	81	37	51	55	0.92	0.00	10
21	e0.40	e1.6	8.1	e7.3	51	75	37	51	64	0.54	0.00	8.7
22	e0.10	e1.5	7.0	e7.0	54	68	39	80	126	0.19	0.00	10
23	e0.00	e1.5	5.7	e7.0	53	97	39	72	75	0.07	0.00	12
24	e0.00	e1.5	4.9	e6.9	47	84	41	66	57	0.03	0.00	15
25	e0.00	e1.4	4.1	e6.9	e45	69	41	58	57	0.01	0.00	14
26	e0.01	e1.2	3.5	e6.8	e40	54	41	53	50	0.00	0.00	11
27	e0.50	e1.1	3.1	e11	e35	49	39	49	42	0.00	0.00	10
28	e0.80	e1.8	3.9	e12	e30	46	39	48	37	0.00	0.00	10
29	e0.80	e2.6	3.9	e14	---	43	38	47	37	0.00	0.00	10
30	e0.40	e2.9	4.2	e18	---	42	39	46	34	0.00	0.00	9.7
31	e0.00	---	4.5	e22	---	41	---	43	---	0.00	0.00	---
TOTAL	5.28	58.50	210.2	270.7	1,067	1,613	1,151	2,165	1,570	219.86	0.00	197.60
MEAN	0.17	1.95	6.78	8.73	38.1	52.0	38.4	69.8	52.3	7.09	0.000	6.59
MAX	0.80	3.0	9.7	22	54	104	43	149	126	32	0.00	35
MIN	0.00	0.00	3.1	5.1	28	30	35	43	34	0.00	0.00	0.00
AC-FT	10	116	417	537	2,120	3,200	2,280	4,290	3,110	436	0.00	392

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2003, BY WATER YEAR (WY)

MEAN	15.5	18.2	16.2	17.1	44.2	112	83.3	111	151	54.3	25.6	20.3
MAX	63.1	55.8	55.7	97.0	281	807	465	583	1,037	314	130	181
(WY)	(1968)	(1987)	(1947)	(1997)	(1997)	(1949)	(2000)	(1957)	(1967)	(1969)	(1979)	(1955)
MIN	0.000	0.76	1.83	0.64	1.21	13.5	12.3	13.4	4.88	0.002	0.000	0.000
(WY)	(1965)	(1977)	(1965)	(1991)	(1991)	(1991)	(1962)	(1985)	(1981)	(1985)	(2003)	(1964)

06446000 WHITE RIVER NEAR OGLALA, SD—Continued

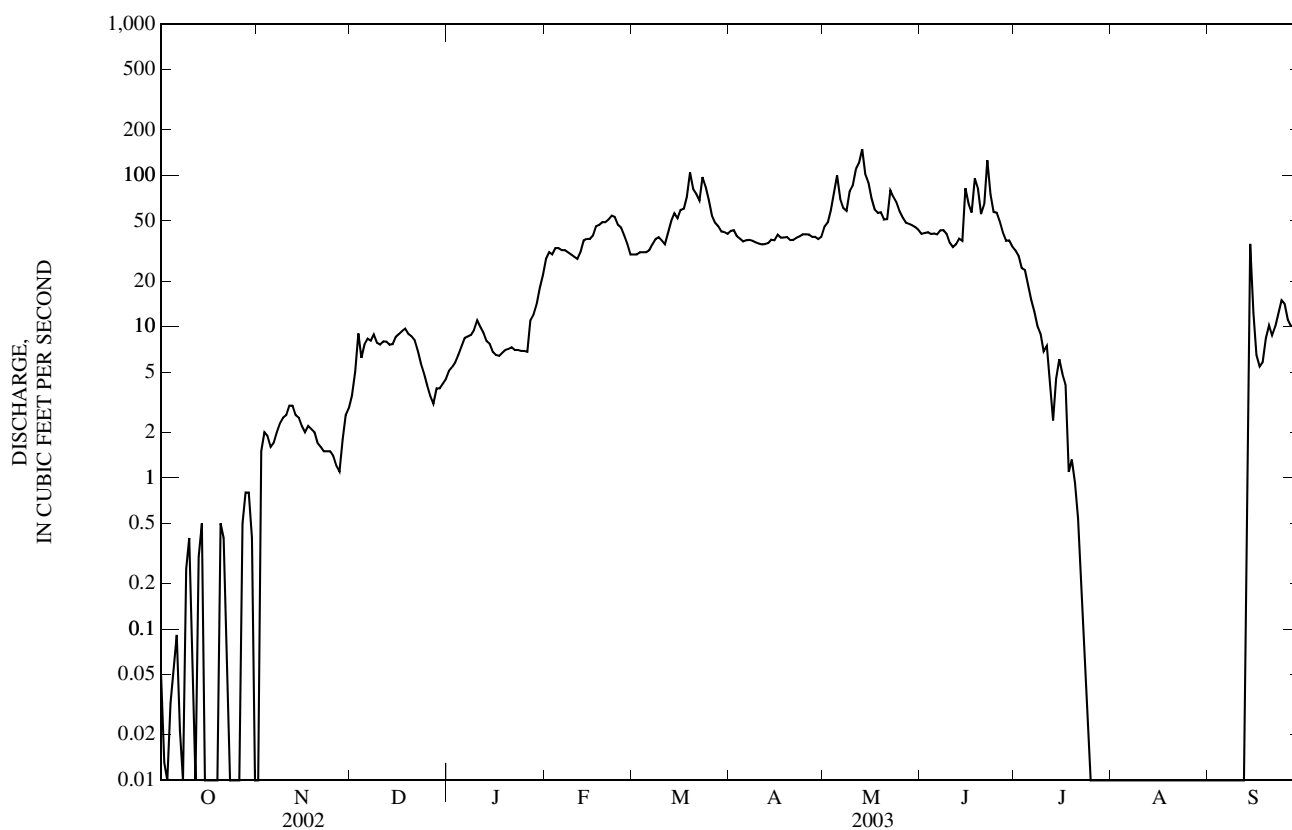
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1944 - 2003	
ANNUAL TOTAL	8,549.98		8,528.14		^a 55.7	
ANNUAL MEAN	23.4		23.4		152	
HIGHEST ANNUAL MEAN					13.0	
LOWEST ANNUAL MEAN					3,870	
HIGHEST DAILY MEAN	230	Apr 3	149	May 13		1997
LOWEST DAILY MEAN	0.00	Jul 27	0.00	Oct 3		1985
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 27	0.00	Jul 26		Jun 23, 1947
MAXIMUM PEAK FLOW			179	May 13	^b 0.00	Sep 25, 1952
MAXIMUM PEAK STAGE			7.91	May 13	^c 5,200	Sep 25, 1952
ANNUAL RUNOFF (AC-FT)	16,960		16,920		23.61	Jun 21, 1947
10 PERCENT EXCEEDS	64		57		40,360	Jun 16, 1967
50 PERCENT EXCEEDS	7.8		9.0		102	
90 PERCENT EXCEEDS	0.00		0.00		22	
					3.9	

a Median of annual mean discharges, 50 ft³/s.

b No flow at times in most years.

c Rating curve extended above 2,800 ft³/s on basis of velocity-area studies, gage height, 23.50 ft.

e Estimated.



LOCATION.--Lat 43° 41' 38", long 101° 55' 56", in SE 1/4 SW 1/4 sec. 14, T.43 N., R.18 E., Jackson County, Hydrologic Unit 10140202, on left bank downstream side of bridge on U.S. Highway 44, 9.5 mi downstream from Potato Creek, 3.9 mi southeast of Interior, and 7.5 mi downstream from Pennington-Jackson County lines.

PERIOD OF RECORD.--June 1904 to November 1906, August 1911 to September 1918, and August 1928 to September 1929 (daily gage heights, discharge measurements, and no winter records). October 1929 to June 1932, September 1939 to September 1942, and October 2002 to September 2003.

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 FOR PERIOD OF RECORD.--Maximum discharge, 17,100 ft³/s, May 1, 1942, from rating curve extended above 7,100 ft³/s at site 7.5 mi upstream at different datum. No flow for many days in some years.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e15	e20	25	e45	e350	e98	81	2,760	80	47	2.3	e0.40
2	e13	e30	30	e50	e290	e100	72	2,360	87	40	e1.0	e0.20
3	e11	e60	16	e60	e250	e102	71	656	101	44	e0.80	e1.0
4	e10	76	e12	e70	e200	e105	73	317	190	106	e0.50	5.2
5	e10	108	e12	e80	e180	e110	90	343	142	259	e26	4.3
6	e10	157	e13	e90	e170	e115	76	336	129	353	16	3.7
7	e10	208	e13	e100	e160	e120	92	397	88	103	7.3	3.2
8	e10	156	e13	e105	e150	e110	97	257	74	86	75	2.7
9	e10	98	e13	e86	e140	e100	87	1,620	65	54	244	2.8
10	e10	61	e13	e75	e130	e120	72	967	61	30	73	3.0
11	e10	43	e14	e65	e125	e150	65	568	59	19	28	2.6
12	e9.8	36	e15	e56	e120	e200	62	460	57	15	36	2.6
13	e9.5	27	e17	e50	e120	e300	57	268	117	12	17	3.3
14	e9.2	23	e20	e44	e125	461	51	197	147	11	10	3.3
15	e9.0	19	e30	e38	e130	341	46	193	85	8.6	7.2	2.7
16	e8.8	18	e60	e35	e180	262	123	189	61	7.2	5.0	2.8
17	e8.5	17	108	e30	e1,000	376	79	155	58	5.7	3.8	2.8
18	e8.5	17	103	e31	e700	1,210	141	146	93	5.8	4.2	64
19	e9.0	19	63	e33	508	2,320	318	129	100	6.3	3.8	88
20	e10	18	48	e35	307	1,020	243	119	169	39	6.7	65
21	e10	18	e40	e30	221	416	126	107	155	42	3.9	33
22	e9.5	17	e37	e28	e180	248	78	100	108	19	2.8	17
23	e10	16	e34	e26	e140	186	61	90	70	13	2.1	11
24	e13	e16	e30	e28	e100	160	63	84	123	7.9	1.7	8.4
25	e20	e15	e28	e30	e90	141	80	119	196	5.4	1.4	11
26	23	e16	e26	e33	e92	166	129	113	131	3.9	e1.2	10
27	27	e18	e27	e36	e94	144	87	95	97	2.6	e1.1	9.9
28	22	e21	e29	e40	e96	123	69	89	87	e1.5	e1.0	11
29	e20	25	e30	e50	---	102	56	79	83	e0.80	e0.80	12
30	e18	20	e35	e130	---	96	60	75	65	e0.50	e0.60	11
31	e16	---	e40	e300	---	97	---	75	---	3.8	e0.50	---
TOTAL	389.8	1,393	994	1,909	6,348	9,599	2,805	13,463	3,078	1,352.00	584.70	397.90
MEAN	12.6	46.4	32.1	61.6	227	310	93.5	434	103	43.6	18.9	13.3
MAX	27	208	108	300	1,000	2,320	318	2,760	196	353	244	88
MIN	8.5	15	12	26	90	96	46	75	57	0.50	0.50	0.20
AC-FT	773	2,760	1,970	3,790	12,590	19,040	5,560	26,700	6,110	2,680	1,160	789

[illegible]

06446500 WHITE RIVER NEAR INTERIOR, SD—Continued

SUMMARY STATISTICS

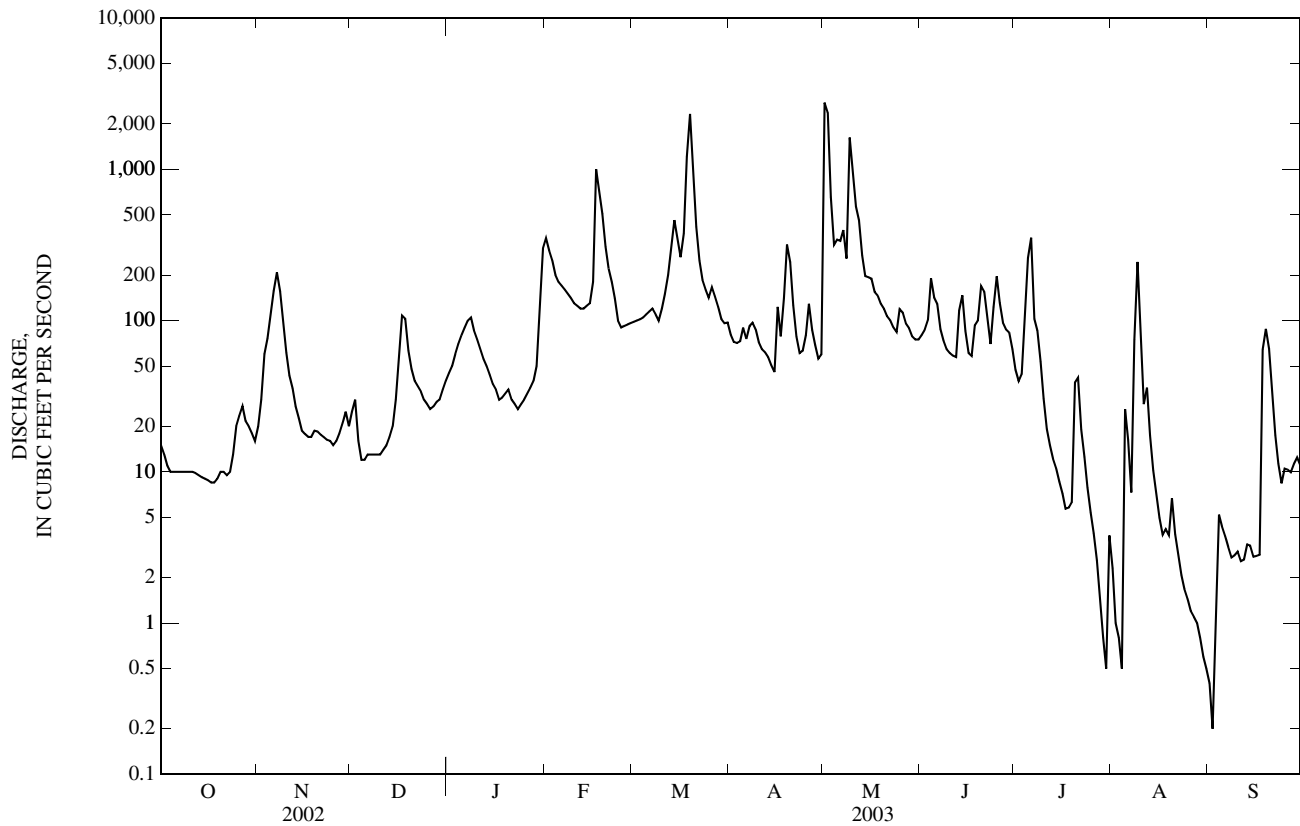
FOR 2003 WATER YEAR

ANNUAL TOTAL	42,313.40	
ANNUAL MEAN	116	
HIGHEST DAILY MEAN	2,760	May 1
LOWEST DAILY MEAN	0.20	Sep 2
ANNUAL SEVEN-DAY MINIMUM	0.64	Aug 28
MAXIMUM PEAK FLOW	^a 5,710	May 1
MAXIMUM PEAK STAGE	^b 9.97	Feb 17
ANNUAL RUNOFF (AC-FT)	83,930	
10 PERCENT EXCEEDS	230	
50 PERCENT EXCEEDS	56	
90 PERCENT EXCEEDS	3.9	

a Gage height, 8.95 ft.

b Backwater from ice, from floodmark.

e Estimated.



06446700 BEAR IN THE LODGE CREEK NEAR WANBLEE, SD

Location.--Lat 43° 32'05", long 101° 47'30", in NE¹/₄ SW¹/₄ sec.12, T.41 N., R.38 W., Jackson County, Hydrologic Unit 10140202, on right bank at downstream side of bridge on State Highway 44, 0.9 mi south of Garner School, 8.2 mi southwest of Wanblee, and 25.3 mi upstream from mouth.

DRAINAGE AREA.--365 mi², approximately.

PERIOD OF RECORD.--June 1992 to May 1993 and May 1994 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,500 ft above NGVD of 1929, from topographic map. In 1951 and 1954-57, operated as nonrecording gage at same 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	e5.0	e10	e8.8	e16	e12	14	43	4.5	1.7	1.4	1.3
2	4.7	e5.5	e12	e8.8	e20	e12	14	24	4.9	1.3	1.2	1.8
3	4.5	e6.0	e15	e9.0	e19	e12	14	30	5.0	3.0	1.0	1.7
4	4.5	e7.5	e12	e9.0	e18	e11	14	30	5.0	32	0.63	1.8
5	4.3	e9.5	e9.0	e9.2	e17	e10	13	29	5.3	22	0.57	2.7
6	4.5	e12	e9.5	e9.5	e15	e10	14	23	5.2	12	0.47	2.2
7	4.5	14	e10	e10	e14	e11	15	19	5.5	12	0.47	1.7
8	4.6	10	e11	e10	e13	e11	16	27	5.4	6.0	0.33	1.7
9	4.8	9.5	e10	e10	e13	e10	16	30	5.0	4.8	0.30	2.0
10	e5.0	9.3	e9.7	e9.0	e12	e12	16	21	4.6	4.2	0.62	1.3
11	e5.0	9.5	e9.8	e8.5	e11	e16	15	23	4.5	3.8	1.1	1.2
12	e5.1	9.2	e9.8	e9.0	e11	e20	14	20	4.1	3.5	0.96	2.2
13	e5.1	9.3	e10	e10	e12	e40	12	20	3.9	4.4	0.63	3.4
14	e5.2	9.5	e11	e9.0	e12	e70	13	18	3.7	4.8	0.41	4.5
15	e5.2	e9.8	e12	e8.0	e12	e60	12	15	3.5	3.3	0.44	5.5
16	e5.4	e10	e14	e7.7	e11	e50	13	13	3.1	2.8	0.68	5.4
17	e6.0	e10	e15	e7.4	e12	e47	13	15	3.0	2.5	0.22	4.9
18	e5.9	e10	e14	e7.0	e13	e45	30	17	2.8	2.6	1.4	9.1
19	e5.7	e10	e12	e7.0	e15	e50	23	14	2.4	2.9	0.84	e6.0
20	e5.5	e10	e10	e7.5	e17	e40	23	15	2.1	2.5	0.56	e5.5
21	5.4	e10	e9.7	e7.0	e18	37	23	14	2.8	2.1	0.40	e4.8
22	5.1	e10	e9.5	e6.6	e17	33	20	12	1.9	2.3	0.19	e4.0
23	5.9	e10	e9.0	e6.0	e15	28	17	11	2.4	2.6	0.95	e3.5
24	6.7	e9.7	e8.7	e6.0	e12	23	16	10	6.1	2.3	1.1	e3.5
25	6.0	e9.4	e8.4	e6.2	e10	20	15	9.5	3.4	1.6	0.66	e3.5
26	5.9	e9.0	e8.0	e6.4	e10	19	14	8.4	3.9	2.2	0.41	e3.0
27	e5.9	e8.5	e8.0	e6.6	e11	17	13	7.6	3.7	2.4	0.19	e3.0
28	e5.8	e8.0	e8.2	e7.0	e11	16	12	7.0	3.4	1.7	0.42	e3.0
29	e5.8	e8.5	e8.5	e8.0	---	15	12	6.2	2.9	1.9	0.29	e3.0
30	e5.6	e9.0	e9.0	e9.0	---	15	15	5.5	2.4	2.2	0.36	e2.5
31	e5.3	---	e9.0	e12	---	15	---	4.8	---	1.6	1.2	---
TOTAL	163.8	277.7	321.8	255.2	387	787	471	542.0	116.4	155.0	20.40	99.7
MEAN	5.28	9.26	10.4	8.23	13.8	25.4	15.7	17.5	3.88	5.00	0.66	3.32
MAX	6.7	14	15	12	20	70	30	43	6.1	32	1.4	9.1
MIN	4.3	5.0	8.0	6.0	10	10	12	4.8	1.9	1.3	0.19	1.2
AC-FT	325	551	638	506	768	1,560	934	1,080	231	307	40	198

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2003, BY WATER YEAR (WY)

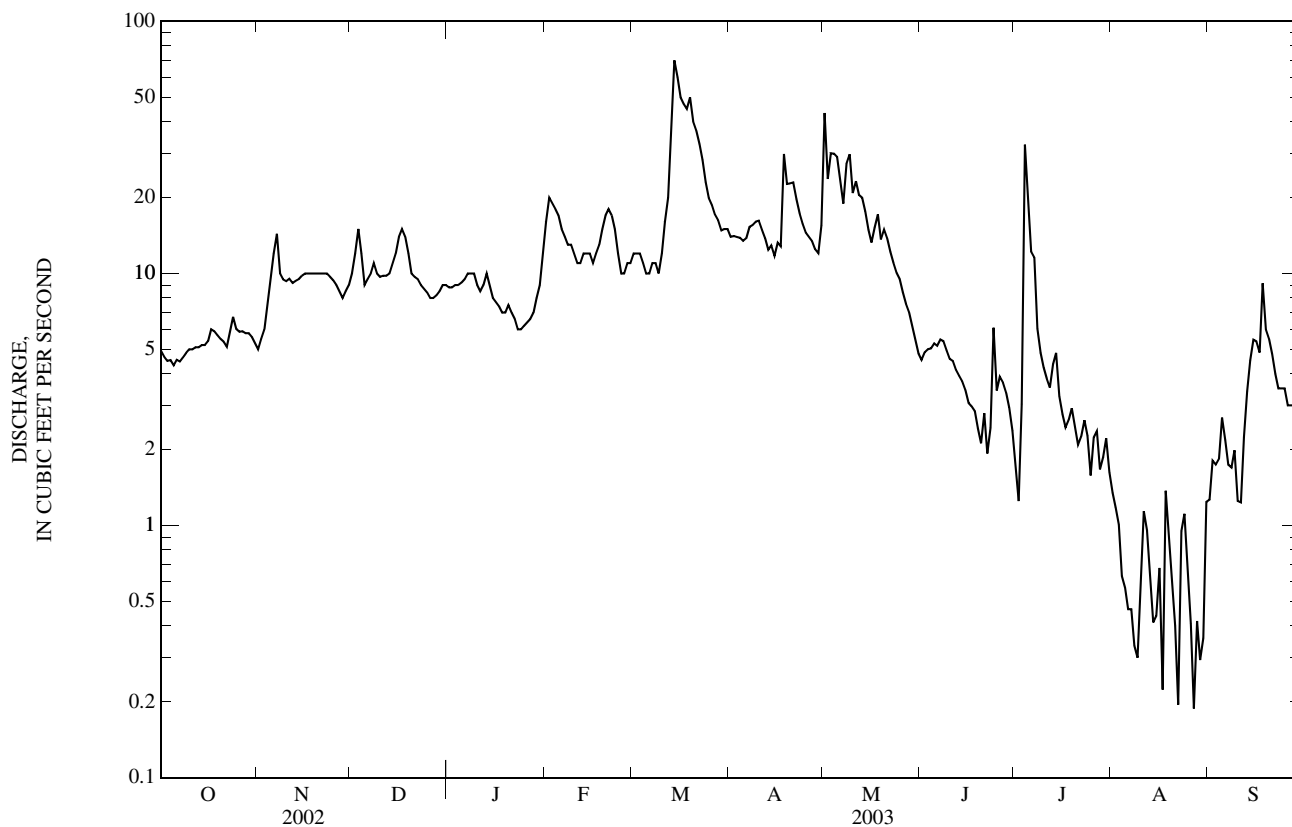
	MEAN											
MEAN	12.3	14.9	13.0	14.6	38.4	39.8	34.1	36.6	58.2	32.7	10.9	8.55
MAX	21.1	30.4	20.5	29.8	156	98.9	59.2	74.6	306	153	27.7	13.5
(WY)	(1999)	(1999)	(1999)	(1997)	(1997)	(2001)	(1997)	(1997)	(1997)	(1997)	(1997)	(1999)
MIN	5.28	9.26	8.00	6.98	11.1	14.1	15.7	17.5	3.88	3.56	0.66	3.32
(WY)	(2003)	(2003)	(2001)	(1996)	(2001)	(1995)	(2003)	(2003)	(2003)	(2002)	(2003)	(2003)

06446700 BEAR IN THE LODGE CREEK NEAR WANBLEE, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1995 - 2003	
ANNUAL TOTAL	4,154.4		3,597.00		26.1	
ANNUAL MEAN	11.4		9.85		75.2	
HIGHEST ANNUAL MEAN					9.85	
LOWEST ANNUAL MEAN					900	
HIGHEST DAILY MEAN	141	Apr 1	70	Mar 14	900	Jun 3, 1997
LOWEST DAILY MEAN	1.3	Aug 2	0.19	Aug 22, 27	0.19	Aug 22, 2003
ANNUAL SEVEN-DAY MINIMUM	1.5	Aug 15	0.48	Aug 4	0.48	Aug 4, 2003
MAXIMUM PEAK FLOW			130	Jul 4	1,100	Jun 3, 1997
MAXIMUM PEAK STAGE			3.30	Jul 4	^a 9.11	Jun 3, 1997
ANNUAL RUNOFF (AC-FT)	8,240		7,130		18,880	
10 PERCENT EXCEEDS	21		19		45	
50 PERCENT EXCEEDS	9.0		8.7		15	
90 PERCENT EXCEEDS	2.8		1.6		5.9	

a From floodmark.

e Estimated.



06447000 WHITE RIVER NEAR KADOKA, SD

LOCATION.--Lat 43° 45' 09", long 101° 31' 28", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 30, T.3 S., R.22 E., Black Hills meridian, Jackson County, Hydrologic Unit 10140202, on left bank 1,000 ft downstream from bridge on State Highway 73, 5.0 mi upstream from Pass Creek, 5.5 mi downstream from Cottonwood Creek, and 5.8 mi south of Kadoka.

DRAINAGE AREA.--5,000 mi², approximately.

PERIOD OF RECORD.--July 1942 to current year.

REVISED RECORDS.--WSP 1279: 1944(M), 1948.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,122.18 ft above NGVD of 1929. Prior to June 14, 1949, nonrecording gage, and June 14, 1949, to Mar. 8, 1955, water-stage recorder at site 0.3 mi downstream at same datum. Mar. 9, 1955, to May 17, 1957, nonrecording gage at present site and datum.

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. National Weather Service telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 4, 1942, reached a stage of 16.24 ft, from floodmarks (discharge, about 32,000 ft³/s, from rating curve extended above 16,000 ft³/s). Floods of Mar. 8, 1905, and in spring of 1927 were 1 or 2 ft higher than flood of June 4, 1942, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	e45	24	e40	e200	e100	88	838	59	71	0.22	0.03
2	18	e60	25	e50	e500	e110	76	3,340	56	60	0.00	0.01
3	14	e80	e13	e58	e480	e120	69	1,420	61	47	0.00	0.01
4	12	96	e15	e66	e450	e115	67	683	63	120	0.00	0.00
5	11	144	e18	e75	e400	e110	65	521	118	902	0.00	0.00
6	11	173	e20	e80	e350	e100	77	478	197	735	0.00	0.00
7	11	210	e22	e88	e300	e110	79	429	108	371	0.00	0.00
8	12	232	e22	e88	e280	e115	93	425	80	161	0.00	0.00
9	13	174	e25	e80	e260	e110	84	1,320	75	114	2.5	0.00
10	14	109	e30	e64	e250	e125	68	1,170	65	69	167	0.00
11	13	76	e36	e50	e240	e140	62	894	62	39	92	0.00
12	11	59	e42	e40	e220	e160	53	531	64	24	33	0.00
13	11	50	e48	e37	e200	e200	45	462	61	19	13	0.00
14	10	43	56	e33	e210	e340	52	277	59	13	22	0.00
15	8.9	38	62	e30	e220	433	41	201	162	7.3	7.8	0.33
16	9.1	36	70	e28	e260	276	620	178	116	5.8	3.5	0.16
17	9.8	31	81	e25	e400	207	422	184	94	4.7	2.1	0.17
18	9.6	29	86	e24	e1,400	888	391	488	73	4.9	1.7	44
19	14	27	84	e23	986	2,080	610	236	73	4.5	2.2	117
20	14	27	e65	e23	547	1,900	367	176	96	1.2	5.6	127
21	12	27	e51	e21	316	857	248	139	126	0.38	3.5	76
22	15	25	e45	e20	124	382	137	120	166	15	2.3	48
23	20	25	e40	e19	e100	219	94	110	136	17	1.6	46
24	32	e22	e35	e18	e80	190	94	104	177	9.0	0.82	30
25	48	e17	e30	e19	e70	164	95	97	211	6.7	0.79	13
26	53	e16	e30	e19	e75	142	87	102	217	4.2	0.64	7.2
27	49	e17	e30	e20	e80	145	99	100	138	2.4	0.53	7.2
28	43	24	e30	e22	e90	134	80	84	105	1.5	0.26	8.3
29	50	31	e31	e25	---	118	77	76	93	2.1	0.00	7.9
30	e44	25	e32	e30	---	98	72	70	90	2.0	0.00	9.0
31	e40	---	e35	e80	---	90	---	63	---	0.52	0.05	---
TOTAL	661.4	1,968	1,233	1,295	9,088	10,278	4,512	15,316	3,201	2,834.20	363.11	541.31
MEAN	21.3	65.6	39.8	41.8	325	332	150	494	107	91.4	11.7	18.0
MAX	53	232	86	88	1,400	2,080	620	3,340	217	902	167	127
MIN	8.9	16	13	18	70	90	41	63	56	0.38	0.00	0.00
AC-FT	1,310	3,900	2,450	2,570	18,030	20,390	8,950	30,380	6,350	5,620	720	1,070

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2003, BY WATER YEAR (WY)

MEAN	106	66.8	40.3	38.7	168	547	410	600	715	287	173	118
MAX	820	425	283	380	945	2,479	1,555	2,802	3,984	986	873	1,060
(WY)	(1999)	(1999)	(1994)	(1997)	(1997)	(1944)	(1970)	(1982)	(1967)	(1969)	(1997)	(1955)
MIN	0.000	1.74	0.000	0.000	0.000	33.8	22.8	23.2	7.29	4.94	2.60	0.17
(WY)	(1965)	(1977)	(1977)	(1977)	(1979)	(1981)	(1981)	(1985)	(1989)	(2002)	(1989)	(1975)

06447000 WHITE RIVER NEAR KADOKA, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1943 - 2003	
ANNUAL TOTAL	39,260.75		51,291.02		273	
ANNUAL MEAN	108		141		612	
HIGHEST ANNUAL MEAN					1997	
LOWEST ANNUAL MEAN					90.0	
HIGHEST DAILY MEAN	3,860	Sep 10	3,340	May 2	16,500	Jun 18, 1962
LOWEST DAILY MEAN	0.00	Jul 4	0.00	Aug 2	^a 0.00	Oct 11, 1943
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 27	0.00	Aug 2	0.00	Aug 3, 1946
MAXIMUM PEAK FLOW			^b 4,210	May 2	^c 21,700	Jun 7, 1951
MAXIMUM PEAK STAGE			^d 8.18	Feb 18	^f 16.18	May 20, 1982
ANNUAL RUNOFF (AC-FT)	77,870		101,700		197,500	
10 PERCENT EXCEEDS	254		357		606	
50 PERCENT EXCEEDS	36		59		63	
90 PERCENT EXCEEDS	2.7		1.4		4.0	

a No flow for many days in most years.

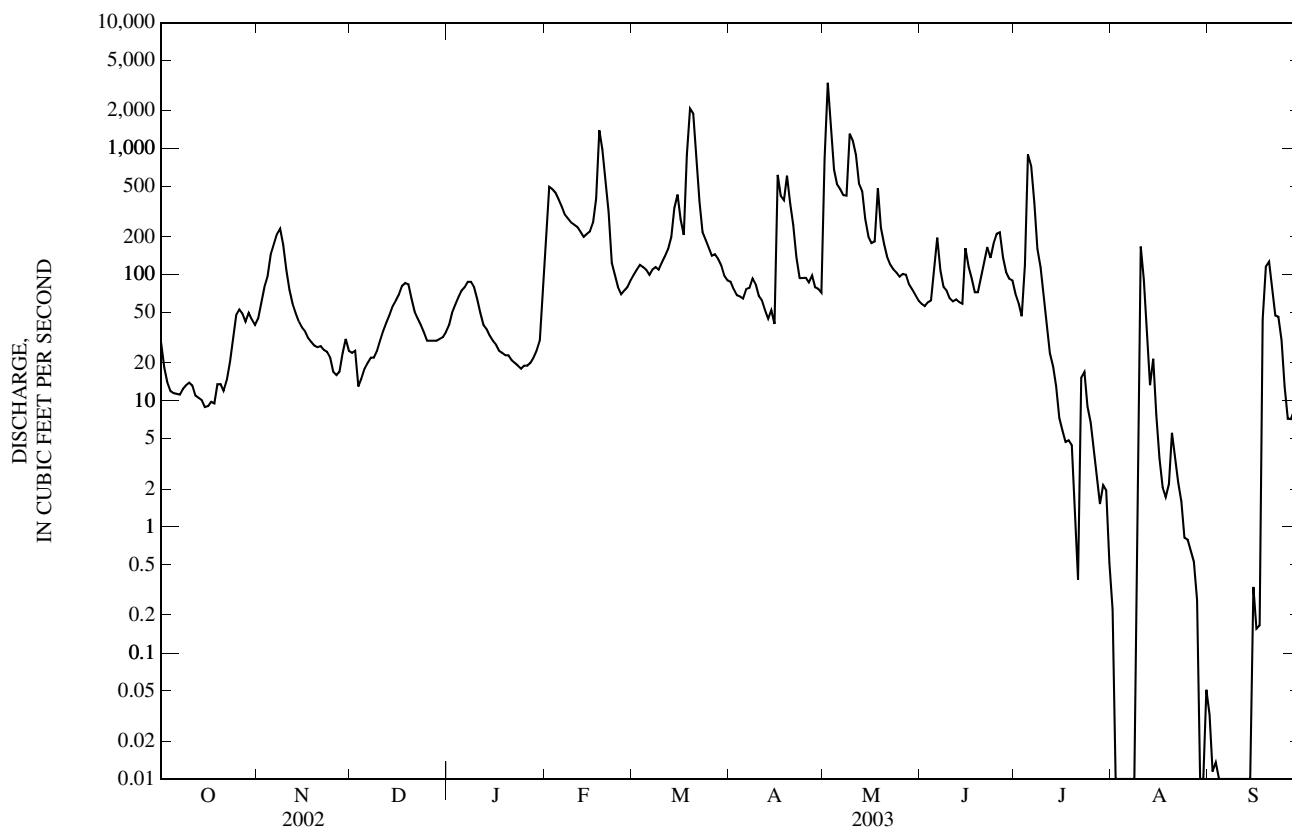
b Gage height, 7.82 ft.

c Gage height, 13.83 ft, site then in use, from rating curve extended above 16,000 ft³/s.

d Backwater from ice.

e Estimated.

f Discharge, 21,300 ft³/s.



06447230 BLACK PIPE CREEK NEAR BELVIDERE, SD

LOCATION.--Lat 43° 45'28", long 101° 13'40", in NW¹/₄ NW¹/₄ sec.27, T.44 N., R.33 W., Black Hills meridian, Jackson County, Hydrologic Unit 10140202, on left bank at downstream side of State Highway 63 bridge, 0.9 mi upstream from Porcupine Creek, 3.7 mi upstream from mouth, and 5.6 mi southeast of Belvidere.

DRAINAGE AREA.--250 mi², approximately.

PERIOD OF RECORD.-- April 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,060 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	e0.00	33	e3.0	e10	e15	2.2	e61	0.19	11	2.3	0.00
2	0.00	e0.00	0.46	e3.0	e20	e14	2.3	e81	0.19	2.7	1.6	0.00
3	0.00	e0.00	e0.44	e3.5	e15	e13	e2.3	e75	0.18	1.00	0.38	0.00
4	0.00	e0.00	e0.42	e4.0	e10	e13	e2.7	e70	0.36	1.7	0.05	0.00
5	0.00	e0.00	e0.40	e3.0	e8.0	e12	e2.9	e61	0.23	146	0.00	0.00
6	0.00	e0.00	e0.40	e2.4	e6.0	e12	e2.2	e34	0.47	144	0.00	0.00
7	0.00	e0.00	e0.50	e1.9	e5.0	e11	e1.9	e25	0.57	22	0.00	0.00
8	0.00	e0.10	e0.60	e1.6	e5.0	e10	e8.8	e22	0.32	15	0.00	0.00
9	0.00	e30	e0.70	e1.4	e5.0	e9.0	e8.4	e28	0.28	7.6	0.00	0.00
10	0.00	e10	e1.0	e1.0	e5.2	e10	e5.4	e8.8	0.29	4.2	0.00	0.00
11	0.00	e4.0	e2.0	e0.80	e5.6	e20	e2.4	e6.6	0.29	1.9	0.00	0.00
12	0.00	e2.5	e4.0	e0.90	e6.0	e300	e1.9	e7.6	0.13	1.2	0.00	0.00
13	0.00	e1.8	e8.0	e1.2	e6.5	e680	e2.7	e8.8	0.15	0.90	0.00	0.00
14	0.00	1.7	e12	e1.1	e7.0	e500	e1.9	2.9	0.03	0.76	0.00	0.00
15	0.00	0.86	17	e1.0	e7.5	e300	e1.8	2.7	0.01	0.49	0.00	0.00
16	0.00	0.84	18	e0.97	e10	e150	e290	1.5	0.00	0.06	0.00	0.00
17	0.00	0.78	19	e0.90	e500	60	e627	2.4	0.00	0.00	0.00	0.00
18	e0.00	0.66	21	e1.4	e700	59	e620	42	0.00	0.00	0.00	0.00
19	e0.00	0.48	17	e2.0	e600	201	e480	8.2	0.00	0.00	0.00	0.00
20	e0.00	0.42	11	e1.5	e400	69	e337	1.4	0.00	0.00	0.00	0.00
21	e0.00	0.37	e8.0	e1.0	e200	28	e188	0.92	0.00	0.00	0.00	0.00
22	e0.00	0.49	e6.0	e0.80	e100	19	e93	1.0	0.20	0.00	0.00	0.00
23	e0.00	0.39	e4.0	e0.60	e50	15	e31	35	0.03	0.00	0.00	0.00
24	e0.00	e0.28	e3.0	e0.72	e30	11	e13	153	14	0.00	0.00	0.00
25	e0.00	e0.20	e2.5	e0.90	e20	6.4	e8.8	7.8	11	0.00	0.00	0.00
26	e0.00	e0.17	e2.0	e1.1	e18	4.6	e18	3.6	1.3	0.00	0.00	0.00
27	e0.00	e0.12	e2.5	e1.5	e17	3.7	e35	1.6	0.30	0.00	0.00	0.00
28	e0.00	e0.16	e3.0	e1.7	e16	4.1	e34	0.73	1.4	0.00	0.00	0.00
29	e0.00	e0.20	e4.0	e2.0	---	6.3	e29	0.49	0.44	0.00	0.00	0.00
30	e0.00	e0.25	e4.0	e3.0	---	5.3	e25	0.33	0.76	7.2	0.00	0.00
31	e0.00	---	e3.5	e5.0	---	2.3	---	0.27	---	1.3	0.00	---
TOTAL	0.00	56.77	209.42	54.89	2,782.8	2,563.7	2,878.6	754.64	33.12	369.01	4.33	0.00
MEAN	0.000	1.89	6.76	1.77	99.4	82.7	96.0	24.3	1.10	11.9	0.14	0.000
MAX	0.00	30	33	5.0	700	680	627	153	14	146	2.3	0.00
MIN	0.00	0.00	0.40	0.60	5.0	2.3	1.8	0.27	0.00	0.00	0.00	0.00
AC-FT	0.00	113	415	109	5,520	5,090	5,710	1,500	66	732	8.6	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2003, BY WATER YEAR (WY)

MEAN	12.6	7.38	6.89	18.1	49.8	55.0	64.8	70.5	79.4	30.3	8.69	10.4
MAX	54.1	27.9	27.2	154	218	116	166	197	346	121	29.5	52.7
(WY)	(1999)	(1999)	(1998)	(1997)	(1997)	(1998)	(1995)	(1995)	(1997)	(1998)	(1997)	(1999)
MIN	0.000	1.14	0.000	0.085	0.72	14.5	10.2	17.8	1.10	0.001	0.14	0.000
(WY)	(1993)	(1994)	(1993)	(1994)	(2001)	(1993)	(1994)	(2000)	(2003)	(2002)	(2003)	(2000)

06447230 BLACK PIPE CREEK NEAR BELVIDERE, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1993 - 2003	
ANNUAL TOTAL	2,957.22		9,707.28		^a 34.3	
ANNUAL MEAN	8.10		26.6		97.2	
HIGHEST ANNUAL MEAN					8.00	
LOWEST ANNUAL MEAN					3,490	
HIGHEST DAILY MEAN	191	Mar 30	700	Feb 18	^b 0.00	Jun 3, 1997
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	^c 0.00	Oct 1, 1992
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 18	0.00	Oct 1	^d 0.00	Oct 1, 1992
MAXIMUM PEAK FLOW			1,200	Feb 17	^e 3,580	Jun 3, 1997
MAXIMUM PEAK STAGE			^d 11.04	Feb 17	^d 15.70	Feb 17, 1997
ANNUAL RUNOFF (AC-FT)	5,870		19,250		24,850	
10 PERCENT EXCEEDS	18		33		73	
50 PERCENT EXCEEDS	0.66		1.0		6.5	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

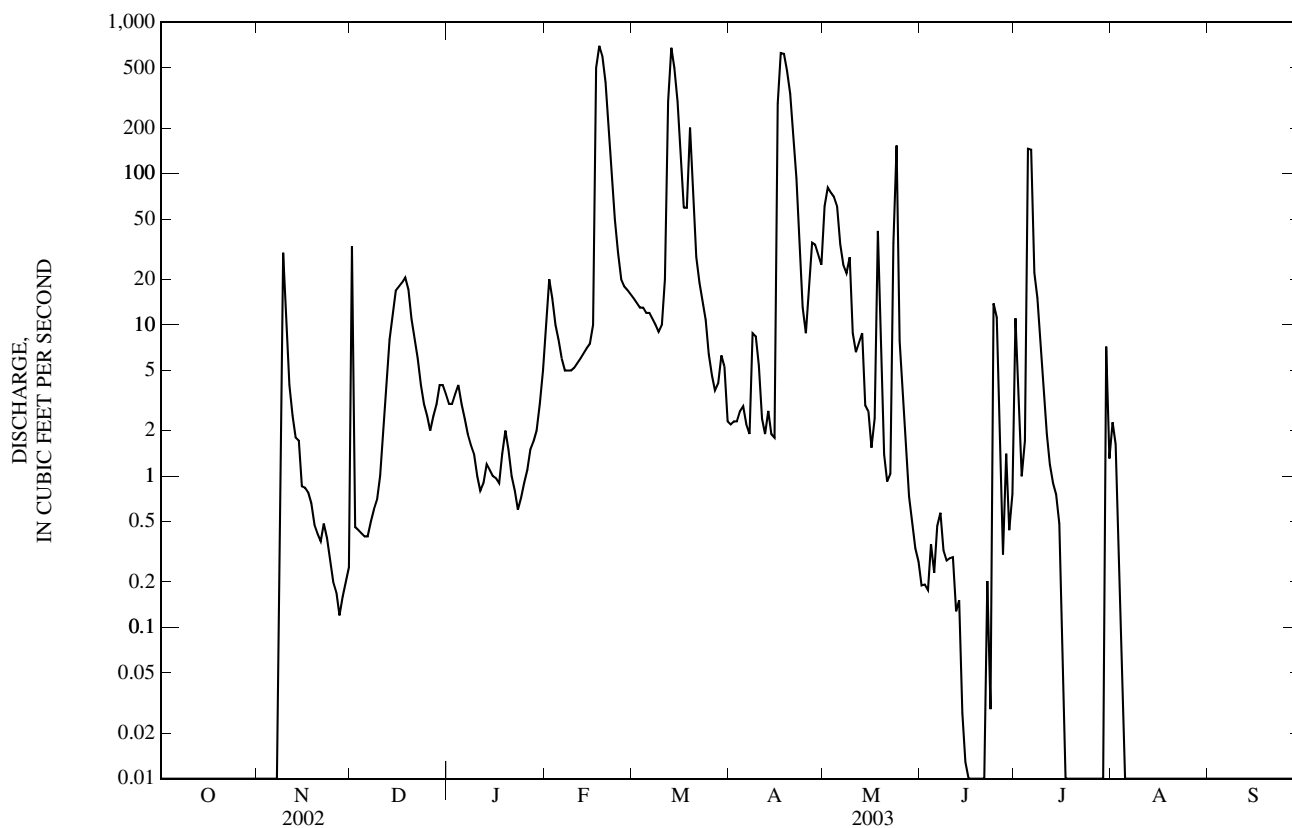
a Median of annual mean discharges, 27 ft³/s.

b No flow at times in most years.

c Gage height, 10.93 ft.

d Backwater from ice.

e Estimated.



06447450 WHITE RIVER NEAR WHITE RIVER, SD

LOCATION.--Lat 43° 42'50", long 100° 41'05", in NW¹/₄ SE¹/₄ SW¹/₄ sec.8, T.4 N., R.28 W., Jones County, Hydrologic Unit 10140202, on left bank retaining wall 50 ft downstream from U.S. Hwy. 83 bridge, 11 mi north of White River.

DRAINAGE AREA.--6,280 mi², approximately, of which about 5,000 mi² probably contributes directly to surface runoff.

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

GAGE.--Water-stage recorder. Elevation of gage is 1,770 ft above NGVD of 1929, from topographic map. Nonrecording gage June 1 to July 26, 2001.

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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	e25	e29	e22	e50	e190	131	e100	72	75	2.5	3.8
2	32	e26	e24	e25	e80	e200	111	94	69	69	2.0	3.9
3	29	e33	e18	e27	e120	e205	106	3,320	65	106	1.5	3.4
4	25	41	e16	e30	e160	e210	103	1,710	63	99	1.1	2.0
5	25	67	e20	e35	e200	e220	95	890	68	79	1.1	1.2
6	23	80	e25	e40	e150	e220	89	549	66	428	1.6	1.1
7	19	111	e30	e50	e100	e210	93	431	64	773	1.5	e0.62
8	16	181	36	e60	e80	e200	91	426	113	713	1.2	e0.33
9	15	200	41	e70	e70	e200	101	410	104	420	0.98	e0.13
10	14	210	46	e65	e60	e200	105	888	90	190	0.83	e0.00
11	14	174	50	e60	e50	e250	111	1,630	82	127	0.62	e0.00
12	e13	132	52	e54	e50	e300	94	965	81	102	0.49	e0.00
13	12	106	52	e48	e53	e380	78	841	76	79	0.31	e0.00
14	12	86	50	e42	e57	e490	69	534	67	59	45	e0.00
15	12	69	53	e38	e60	e600	58	467	59	38	42	e0.00
16	12	62	54	e34	e70	e700	77	324	59	30	33	e0.00
17	12	53	58	e30	e90	e640	110	254	63	26	28	e0.00
18	11	48	69	e28	e200	e500	833	217	112	22	22	e1.8
19	9.9	44	69	e26	e500	1,480	440	245	75	19	18	3.0
20	9.7	41	e65	e26	e1,000	2,200	990	535	62	15	15	1.3
21	9.1	37	e58	e24	e1,400	1,960	580	288	65	11	13	0.56
22	10	34	e50	e20	e1,100	1,110	433	195	75	7.8	11	0.23
23	12	32	e44	e18	e900	668	322	149	74	5.8	9.1	124
24	16	e30	e38	e19	e500	430	227	124	110	4.4	7.3	126
25	17	e27	e35	e20	e300	318	175	201	145	3.5	6.5	8.8
26	16	e25	e30	e21	e200	263	147	223	151	2.9	6.6	2.2
27	17	e23	e27	e22	e175	222	118	121	221	2.4	5.4	0.56
28	27	e24	e24	e24	e180	188	109	95	197	2.1	5.4	0.56
29	47	e25	e20	e24	---	174	114	100	165	2.0	4.2	0.19
30	e40	e27	e20	e27	---	166	120	102	104	3.1	3.8	0.04
31	e24	---	e21	e30	---	153	---	82	---	3.0	3.6	---
TOTAL	585.7	2,073	1,224	1,059	7,955	15,247	6,230	16,510	2,817	3,517.0	294.63	285.72
MEAN	18.9	69.1	39.5	34.2	284	492	208	533	93.9	113	9.50	9.52
MAX	47	210	69	70	1,400	2,200	990	3,320	221	773	45	126
MIN	9.1	23	16	18	50	153	58	82	59	2.0	0.31	0.00
MED	16	42	38	28	135	250	111	288	75	30	4.2	0.56
AC-FT	1,160	4,110	2,430	2,100	15,780	30,240	12,360	32,750	5,590	6,980	584	567

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2003, BY WATER YEAR (WY)

MEAN	31.0	58.7	84.7	32.8	175	338	263	464	66.6	58.5	20.4	144
MAX	43.1	69.1	130	34.2	284	492	318	533	93.9	113	31.4	279
(WY)	(2002)	(2003)	(2002)	(2003)	(2003)	(2003)	(2002)	(2003)	(2003)	(2003)	(2002)	(2002)
MIN	18.9	48.3	39.5	31.4	66.5	184	208	396	39.3	3.61	9.50	9.52
(WY)	(2003)	(2002)	(2003)	(2002)	(2002)	(2002)	(2003)	(2002)	(2002)	(2002)	(2003)	(2003)

06447450 WHITE RIVER NEAR WHITE RIVER, SD—Continued

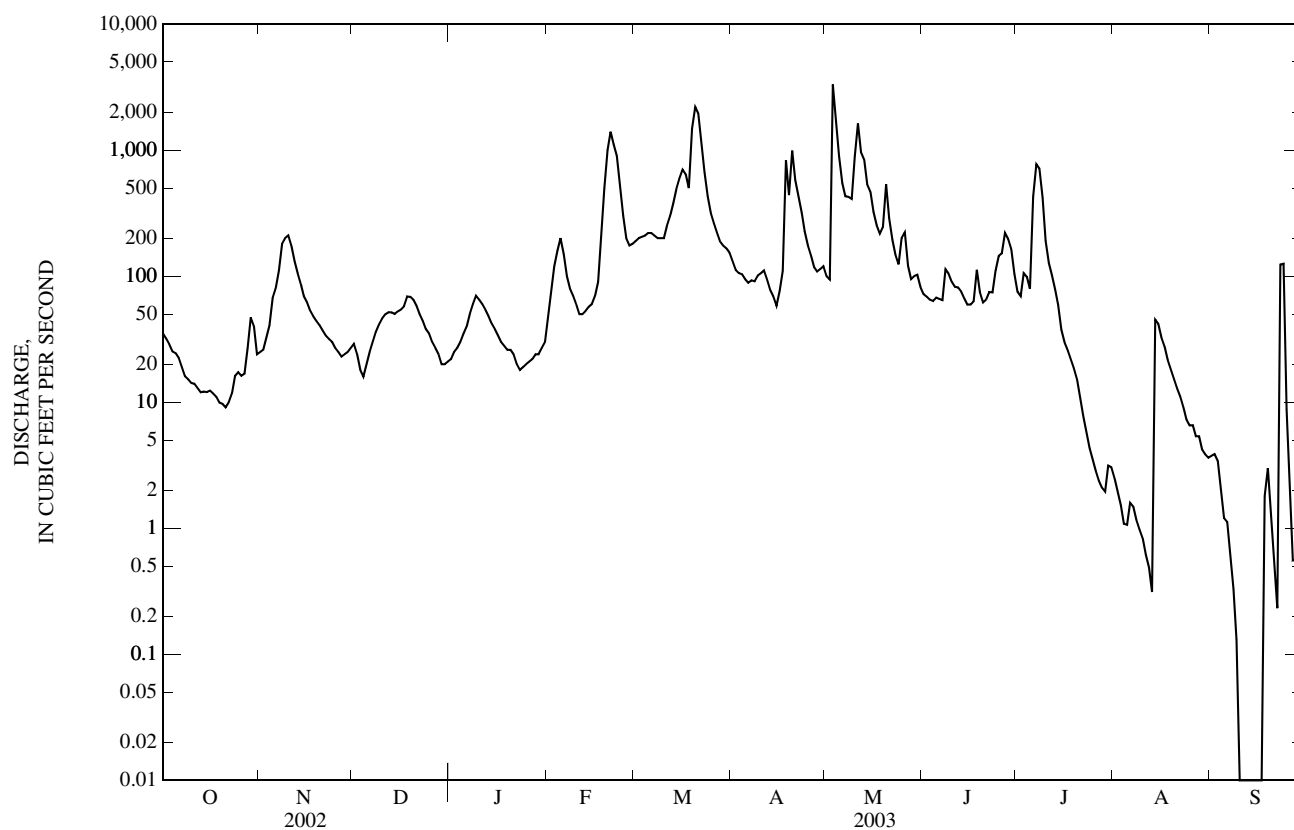
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2002 - 2003	
ANNUAL TOTAL	44,854.55		57,798.05		145	
ANNUAL MEAN	123		158		158	
HIGHEST ANNUAL MEAN					131	
LOWEST ANNUAL MEAN					2002	
HIGHEST DAILY MEAN	2,490	Sep 11	3,320	May 3	3,320	May 3, 2003
LOWEST DAILY MEAN	0.19	Aug 3	0.00	Sep 10	^a 0.00	Sep 10, 2003
ANNUAL SEVEN-DAY MINIMUM	0.75	Jul 30	0.00	Sep 10	0.00	Sep 10, 2003
MAXIMUM PEAK FLOW			^b 3,970	May 3	^b 3,970	May 3, 2003
MAXIMUM PEAK STAGE			^c 13.37	Feb 19	^c 13.37	Feb 19, 2003
ANNUAL RUNOFF (AC-FT)	88,970		114,600		104,800	
10 PERCENT EXCEEDS	267		429		359	
50 PERCENT EXCEEDS	39		57		52	
90 PERCENT EXCEEDS	4.8		2.2		3.4	

a No flow Sept. 10-17, 2003.

b Gage height, 8.92 ft.

c Ice jam.

e Estimated.



06447500 LITTLE WHITE RIVER NEAR MARTIN, SD

LOCATION.--Lat 43° 10'00", long 101° 37'47", in NW¹/₄ SW¹/₄ NW¹/₄ sec.19, T.37 N., R.36 W., Bennett County, Hydrologic Unit 10140203, on right bank 110 ft downstream from highway culvert and 5.4 mi east of Martin.

DRAINAGE AREA.--310 mi², approximately, of which about 230 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year. Prior to October 1965, published as South Fork White River near Martin.

GAGE.--Water-stage recorder. Elevation of gage is 3,045 ft above NGVD of 1929, by barometer. Prior to Aug. 14, 1938, nonrecording gage at same site and datum. Prior to June 17, 1997, gage 40 ft upstream at same 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 May 5, 1932, reached a stage of 13.3 ft, from floodmarks.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	e13	e23	e14	e35	e45	22	30	10	8.9	5.6	7.1
2	13	e13	e21	e15	e30	e40	21	58	11	8.5	5.5	6.9
3	13	e14	e19	e17	e27	e38	21	59	11	8.0	5.5	6.8
4	14	e15	e18	e18	e24	e35	20	59	11	7.6	5.6	6.5
5	14	e20	e17	e17	e20	e34	19	48	12	7.4	5.4	6.2
6	13	e25	e15	e16	e18	e35	19	36	12	7.5	5.2	5.9
7	13	20	e16	e17	e16	e36	20	28	12	7.3	5.1	5.7
8	12	17	e16	e18	e14	e35	21	24	12	7.2	5.1	5.6
9	11	17	e15	e20	e14	e34	25	23	11	7.0	5.7	5.7
10	12	16	e14	e17	e14	e37	25	33	11	6.9	5.1	5.9
11	12	16	e14	e14	e15	e40	22	34	11	6.7	4.7	6.2
12	11	15	e15	e10	e15	e46	21	37	12	6.6	4.7	6.2
13	11	15	e15	e13	e16	e45	18	38	12	6.7	4.7	6.1
14	11	14	15	e17	e18	e50	16	36	11	6.6	4.7	6.3
15	12	14	17	e14	e20	e65	16	31	11	6.1	5.2	6.5
16	12	14	20	e10	e24	e55	16	24	11	6.1	5.1	6.6
17	13	14	27	e9.0	e28	41	15	22	11	6.0	5.0	6.6
18	13	15	20	e9.5	e32	39	17	31	10	6.1	5.0	7.3
19	13	15	31	e10	e37	51	23	40	10	6.5	5.1	7.6
20	13	15	20	e12	e44	60	35	32	9.5	6.9	5.5	8.5
21	13	14	16	e11	e50	62	35	30	9.3	6.9	5.5	8.2
22	13	15	e14	e9.0	e60	57	31	22	9.5	6.7	5.4	8.2
23	14	15	e13	e8.5	e48	45	27	19	9.2	6.8	5.2	8.0
24	14	15	e12	e8.0	e37	37	22	17	9.9	6.4	5.0	8.0
25	14	e14	e12	e8.5	e30	33	19	15	11	6.1	5.2	7.6
26	15	e12	e11	e9.0	e33	29	18	14	11	5.9	5.6	7.5
27	16	e10	e11	e9.5	e37	26	18	13	11	5.6	6.3	7.8
28	15	e12	e11	e12	e40	23	17	12	10	5.5	6.5	8.0
29	16	e16	e11	e16	---	21	16	12	10	5.4	6.2	7.9
30	e15	e25	e12	e30	---	20	18	11	9.5	5.5	6.5	9.0
31	e14	---	e13	e40	---	20	---	11	---	5.7	7.2	---
TOTAL	408	465	504	449.0	796	1,234	633	899	321.9	207.1	168.1	210.4
MEAN	13.2	15.5	16.3	14.5	28.4	39.8	21.1	29.0	10.7	6.68	5.42	7.01
MAX	16	25	31	40	60	65	35	59	12	8.9	7.2	9.0
MIN	11	10	11	8.0	14	20	15	11	9.2	5.4	4.7	5.6
AC-FT	809	922	1,000	891	1,580	2,450	1,260	1,780	638	411	333	417

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1940, 1962 - 2003, BY WATER YEAR (WY)

	1939	1940	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
MEAN	13.9	16.9	13.3	12.0	23.8	44.8	37.8	31.5	30.7	15.8	12.1	9.81
MAX	34.8	46.9	28.8	34.9	199	157	104	66.4	162	44.5	102	19.9
(WY)	(1999)	(1999)	(1994)	(1997)	(1997)	(1966)	(1977)	(2000)	(1997)	(1969)	(1983)	(1998)
MIN	7.86	9.73	5.59	4.51	6.26	11.4	13.0	12.2	5.65	2.01	1.80	4.87
(WY)	(1980)	(1965)	(1986)	(1982)	(1989)	(1977)	(1981)	(1940)	(1940)	(1940)	(1940)	(1939)

06447500 LITTLE WHITE RIVER NEAR MARTIN, SD—Continued

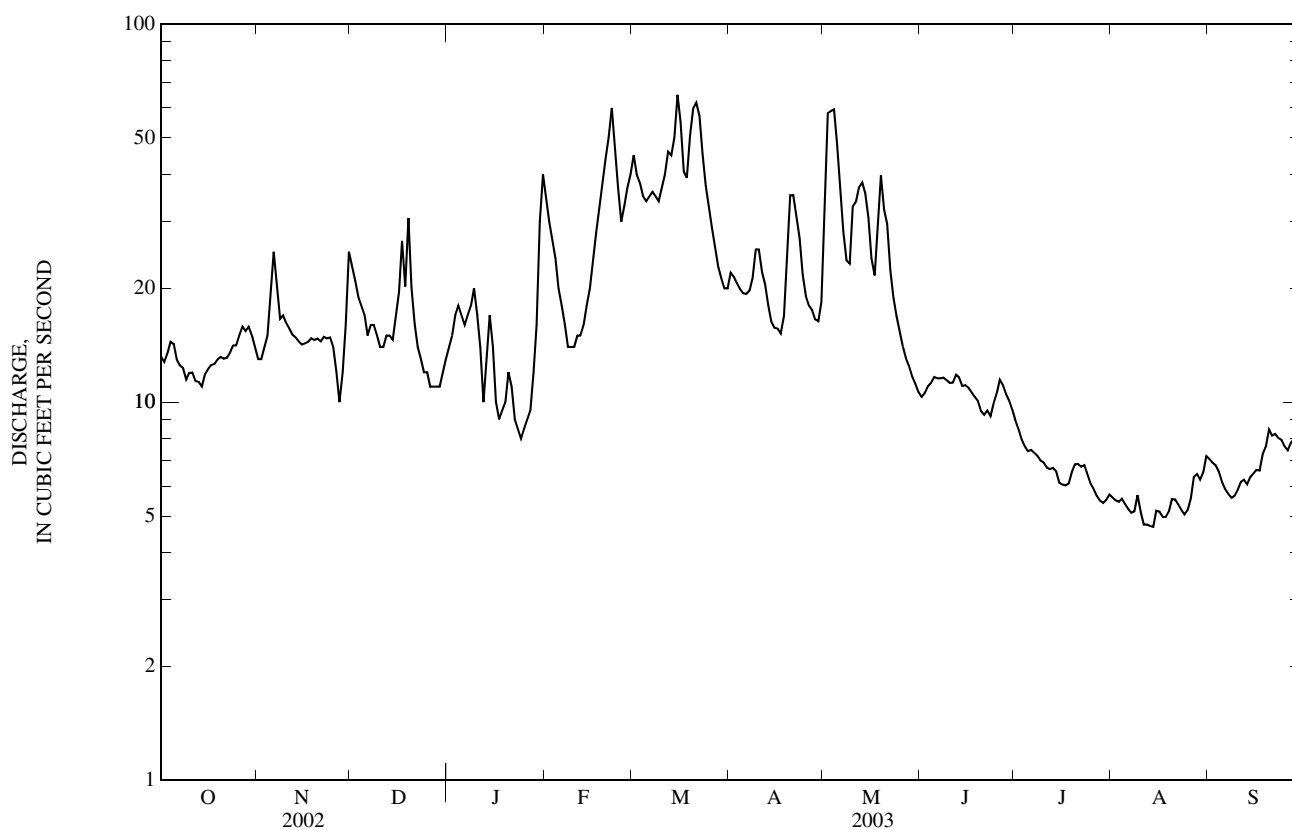
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939-1940, 1962-2003	
ANNUAL TOTAL	6,223.8		6,295.5		21.8	
ANNUAL MEAN	17.1		17.2		53.7	
HIGHEST ANNUAL MEAN					10.9	
LOWEST ANNUAL MEAN					1,110	
HIGHEST DAILY MEAN	126	Mar 31	65	Mar 15	1,110	Jun 4, 1997
LOWEST DAILY MEAN	5.2	Aug 2	4.7	Aug 11	^a 0.60	Aug 14, 1940
ANNUAL SEVEN-DAY MINIMUM	5.5	Jul 29	4.9	Aug 11	0.67	Aug 12, 1940
MAXIMUM PEAK FLOW			^b 79	Mar 15	1,300	Jun 4, 1997
MAXIMUM PEAK STAGE			^c 3.02	Feb 26	13.48	Jun 4, 1997
ANNUAL RUNOFF (AC-FT)	12,340		12,490		15,810	
10 PERCENT EXCEEDS	31		36		40	
50 PERCENT EXCEEDS	13		14		14	
90 PERCENT EXCEEDS	7.3		5.9		6.5	

a Also Aug. 16, 18, 1940, and no flow part of each day Oct. 19, 20, 22, 1962 (regulation due to construction).

b Gage height, 2.78 ft.

c Backwater from ice.

e Estimated.



06448000 LAKE CREEK ABOVE REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°05'07", long 101°36'04", in NE¹/₄ SW¹/₄ NE¹/₄ sec.19, T.36 N., R.36 W., Bennett County, Hydrologic Unit 10140203, on right wingwall at upstream side of culvert, 80 ft downstream from west boundary of LaCreek game refuge and 7.5 mi southwest of Tuthill.

DRAINAGE AREA.--58 mi², approximately, of which about 23 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to February 1979, Apr. 11, 1996, to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,090 ft above NGVD of 1929, by barometer. Prior to Aug. 9, 1938, nonrecording gage and Aug. 9, 1938, to Sept. 30, 1940, water-stage recorder at site 110 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. A few small diversions for irrigation of hay meadows above station. 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	e23	27	23	e32	e21	27	66	20	19	19	21
2	21	24	27	22	e30	e21	27	40	20	18	19	20
3	21	25	28	23	e28	e21	26	31	22	17	18	20
4	21	26	27	23	e26	e20	26	28	22	18	18	19
5	21	26	e26	23	e24	e20	26	26	24	19	18	18
6	21	26	e25	23	e22	e21	28	26	22	19	17	18
7	20	26	25	24	e22	e22	32	25	22	18	17	18
8	21	25	24	25	e22	e24	33	26	21	18	17	18
9	21	25	24	23	e23	e22	31	30	20	17	21	19
10	20	26	24	e22	e23	e20	27	28	19	17	19	19
11	20	24	24	e21	e24	e20	26	30	25	17	18	19
12	21	24	26	e20	e25	e21	25	25	21	17	18	19
13	21	24	24	e23	26	e22	24	24	26	18	17	20
14	21	23	24	e28	26	e23	25	23	22	19	17	20
15	21	23	25	e26	30	e24	25	22	21	18	17	19
16	21	23	26	e24	28	e28	30	22	23	17	16	19
17	21	23	25	e22	32	32	28	26	22	17	17	19
18	21	23	26	e20	31	51	41	58	22	19	18	24
19	21	24	25	e21	30	57	39	36	20	20	18	22
20	22	23	e24	e22	30	41	30	28	20	19	18	21
21	22	23	e23	e20	29	33	26	25	21	18	18	21
22	22	23	e22	e18	e27	30	25	24	19	18	18	20
23	23	23	e22	e17	e24	28	26	23	20	17	17	20
24	24	e22	e21	e17	e22	29	26	22	31	16	16	19
25	25	e21	e21	e17	e20	28	24	21	33	17	18	19
26	24	e20	e21	e18	e20	28	24	21	25	16	20	19
27	24	e22	22	e19	e20	28	23	20	22	17	17	20
28	23	e25	24	e20	e21	26	24	20	21	17	17	20
29	25	30	24	e23	---	25	30	19	22	18	20	19
30	e24	27	23	e26	---	26	41	18	21	20	22	20
31	e22	---	23	e28	---	26	---	19	---	18	22	---
TOTAL	675	722	752	681	717	838	845	852	669	553	562	589
MEAN	21.8	24.1	24.3	22.0	25.6	27.0	28.2	27.5	22.3	17.8	18.1	19.6
MAX	25	30	28	28	32	57	41	66	33	20	22	24
MIN	20	20	21	17	20	20	23	18	19	16	16	18
AC-FT	1,340	1,430	1,490	1,350	1,420	1,660	1,680	1,690	1,330	1,100	1,110	1,170

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1940, 1963 - 1979, 1997 - 2003, BY WATER YEAR (WY)

	19.9	21.4	20.8	20.7	24.1	29.0	28.0	24.6	21.4	17.0	16.0	17.2
MEAN	19.9	21.4	20.8	20.7	24.1	29.0	28.0	24.6	21.4	17.0	16.0	17.2
MAX	28.0	28.1	28.8	32.2	34.6	38.7	44.7	50.9	44.6	28.6	23.5	24.8
(WY)	(1999)	(1999)	(2002)	(2001)	(1999)	(2001)	(2001)	(2000)	(1999)	(1999)	(1997)	(2002)
MIN	15.0	14.5	7.39	12.2	11.1	17.5	18.6	9.99	8.83	10.3	8.40	11.5
(WY)	(1976)	(1939)	(1939)	(1979)	(1939)	(1976)	(1976)	(1939)	(1939)	(1974)	(1970)	(1970)

06448000 LAKE CREEK ABOVE REFUGE, NEAR TUTHILL, SD—Continued

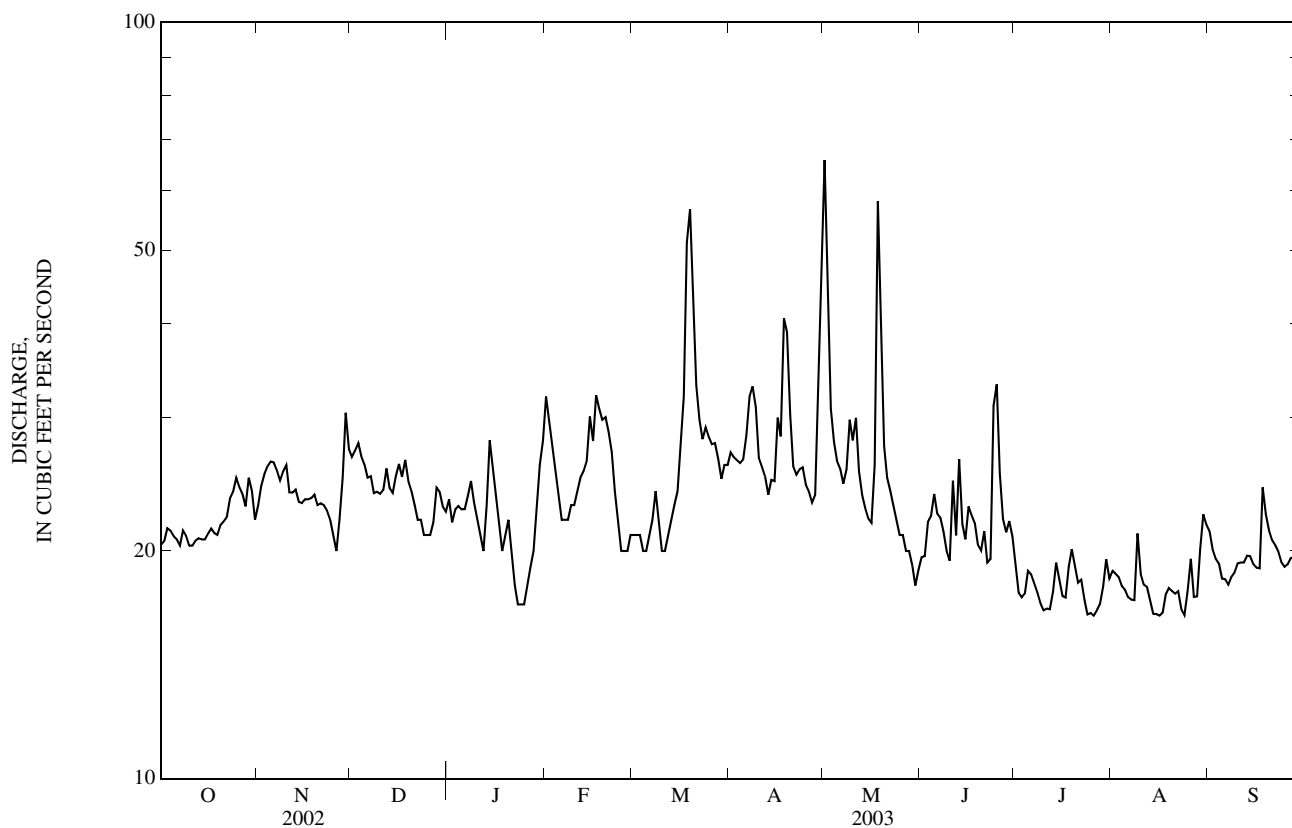
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939-1940, 1963-1979, 1997-2003	
ANNUAL TOTAL	9,498		8,455			
ANNUAL MEAN	26.0		23.2		21.6	
HIGHEST ANNUAL MEAN					28.7	
LOWEST ANNUAL MEAN					13.8	
HIGHEST DAILY MEAN	80	Mar 14	66	May 1	115	May 27, 1996
LOWEST DAILY MEAN	15	Jul 5	16	Jul 24	0.10	Jun 5, 1939
ANNUAL SEVEN-DAY MINIMUM	16	Jun 29	17	Jul 22	1.0	Jun 3, 1939
MAXIMUM PEAK FLOW			^a 91	May 1	^b 154	Mar 9, 1966
MAXIMUM PEAK STAGE			^c 2.68	Feb 6	^c 3.75	Feb 12, 1971
ANNUAL RUNOFF (AC-FT)	18,840		16,770		15,670	
10 PERCENT EXCEEDS	34		28		30	
50 PERCENT EXCEEDS	25		22		20	
90 PERCENT EXCEEDS	18		18		13	

a Gage height, 2.26 ft, from crest-stage gage.

b Gage height, 2.83 ft.

c Backwater from ice.

e Estimated.



06449000 LAKE CREEK BELOW REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°08'49", long 101°30'51", in SE¹/₄ SE¹/₄ sec.25, T.37 N., R.36 W., Bennett County, Hydrologic Unit 10140203, on left bank 40 ft upstream from east boundary of LaCreek game refuge, 1.2 mi southwest of Tuthill, and 5.5 mi upstream from mouth.

DRAINAGE AREA.--120 mi², approximately, of which about 60 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,055 ft above NGVD of 1929, by barometer. Prior to Oct. 1, 1999, at site 400 ft downstream at same datum. Prior to Aug. 4, 1938, nonrecording gage at site 400 ft downstream at same 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e0.50	e23	e13	29	40	37	49	16	19	12	e1.5	9.8
2	e0.30	e24	e14	29	40	37	42	24	19	12	e1.4	8.4
3	e0.40	e23	e14	29	40	37	46	29	18	10	e1.5	8.4
4	e0.50	e26	e16	28	40	37	49	28	17	10	e5.0	8.7
5	e0.40	e24	e18	29	40	37	49	33	18	10	e4.2	9.4
6	e0.40	e25	e19	29	40	37	50	33	18	10	e1.7	9.5
7	e0.30	e28	17	29	e40	37	57	28	18	8.8	e1.8	11
8	e0.20	e15	15	29	41	37	64	28	16	8.9	5.2	7.4
9	e0.15	e13	14	e25	41	37	66	34	14	11	6.5	3.4
10	e1.5	e17	14	e26	41	37	65	35	11	8.4	6.4	3.6
11	e1.0	e20	13	e28	40	37	65	34	11	6.9	5.9	2.5
12	e0.50	e13	13	31	39	37	65	31	9.6	5.6	6.8	2.8
13	e0.20	e8.1	13	31	39	37	66	30	8.9	4.7	6.0	3.3
14	e0.20	e15	13	31	39	37	63	27	8.3	5.5	7.0	3.3
15	e0.20	e19	12	31	38	37	61	15	8.2	2.7	6.9	e2.4
16	e0.15	e13	10	32	39	36	59	6.5	10	e1.0	5.5	e2.2
17	e0.15	e12	8.5	32	39	37	55	6.6	10	e0.40	6.5	e2.0
18	e0.15	e11	7.4	32	39	37	56	6.8	8.7	e0.30	5.8	e1.9
19	e0.52	e11	6.9	33	38	37	58	20	6.8	e0.20	5.3	e1.8
20	e1.6	e12	16	33	38	36	55	24	6.4	e0.10	6.8	2.2
21	e4.0	e16	31	33	38	36	51	23	10	e0.20	4.3	3.5
22	e5.2	e13	29	33	38	37	47	23	12	e1.0	5.7	5.5
23	e6.8	e8.3	29	33	38	36	45	23	12	e0.80	9.0	2.8
24	e6.6	e9.1	29	34	e38	35	43	23	16	e0.60	7.3	3.2
25	e8.7	e10	29	34	38	36	37	23	17	e3.0	8.7	1.9
26	e13	e10	28	34	37	37	29	22	16	e2.0	2.7	2.0
27	e15	e12	29	38	38	37	27	23	15	e1.9	10	4.4
28	e16	e10	29	40	37	40	19	22	13	e1.7	7.7	5.0
29	e20	e10	28	40	---	e40	15	22	13	e1.7	8.0	4.3
30	e22	e8.7	28	40	---	e44	15	20	12	e1.6	9.7	2.6
31	e22	---	28	40	---	e45	---	18	---	e1.6	13	---
TOTAL	148.62	459.2	583.8	995	1,093	1,161	1,468	730.9	391.9	144.60	183.8	139.2
MEAN	4.79	15.3	18.8	32.1	39.0	37.5	48.9	23.6	13.1	4.66	5.93	4.64
MAX	22	28	31	40	41	45	66	35	19	12	13	11
MIN	0.15	8.1	6.9	25	37	35	15	6.5	6.4	0.10	1.4	1.8
AC-FT	295	911	1,160	1,970	2,170	2,300	2,910	1,450	777	287	365	276

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939, 1963 - 2003, BY WATER YEAR (WY)

MEAN	6.45	10.8	16.1	18.7	22.6	33.3	37.5	32.3	29.1	15.9	11.2	8.67
MAX	23.8	43.4	48.3	49.9	49.9	109	96.1	79.3	139	63.4	42.8	35.8
(WY)	(1939)	(1999)	(1999)	(1997)	(1997)	(1987)	(1977)	(1991)	(1991)	(1967)	(1994)	(1993)
MIN	0.000	0.000	0.000	0.000	0.000	0.058	0.090	0.029	0.033	0.24	0.084	0.11
(WY)	(1940)	(1940)	(1940)	(1940)	(1940)	(1940)	(1965)	(1939)	(1939)	(1939)	(1939)	(1939)

06449000 LAKE CREEK BELOW REFUGE, NEAR TUTHILL, SD—Continued

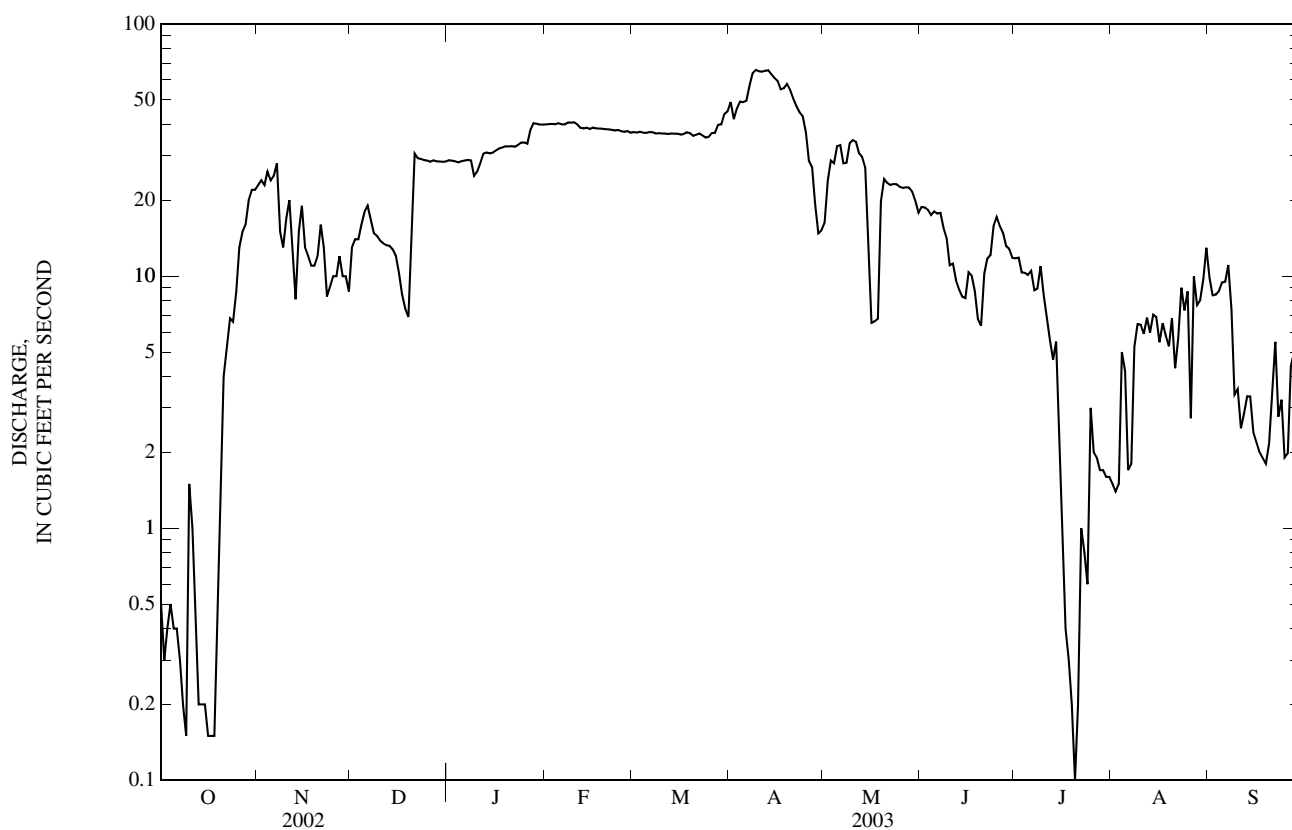
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939, 1963 - 2003	
ANNUAL TOTAL	8,255.61		7,499.02		20.2	
ANNUAL MEAN	22.6		20.5		41.9	
HIGHEST ANNUAL MEAN					3.09	
LOWEST ANNUAL MEAN					424	
HIGHEST DAILY MEAN	59	Apr 13	66	Apr 9	424	Mar 25, 1987
LOWEST DAILY MEAN	0.15	Oct 9	0.10	Jul 20	^a 0.00	Mar 25, 1939
ANNUAL SEVEN-DAY MINIMUM	0.22	Oct 12	0.22	Oct 12	0.00	Mar 25, 1939
MAXIMUM PEAK FLOW			69	Apr 12	^b 594	Mar 25, 1987
MAXIMUM PEAK STAGE			3.93	Apr 12	^c 6.46	Mar 12, 1988
ANNUAL RUNOFF (AC-FT)	16,380		14,870		14,640	
10 PERCENT EXCEEDS	55		40		48	
50 PERCENT EXCEEDS	21		16		15	
90 PERCENT EXCEEDS	1.9		1.7		0.61	

a No flow at times in some years.

b Gage height, 5.57 ft, from rating curve extended above 150 ft³/s.

c Backwater from ice, at site 400 ft downstream.

e Estimated.



06449100 LITTLE WHITE RIVER NEAR VETAL, SD

LOCATION.--Lat 43°06'03", long 101°13'49", in NE¹/₄ NW¹/₄ sec.17, T.36 N., R.33 W., Bennett County, Hydrologic Unit 10140203, on left bank downstream side of highway culvert, 0.3 mi downstream from small right-bank tributary, 10.8 mi southeast of Vetal, and 15.3 mi upstream from Spring Creek.

DRAINAGE AREA.--590 mi², approximately, of which about 415 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--August 1959 to current year. Prior to October 1965, published as South Fork White River near Vetal.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,780.69 ft above NGVD of 1929. Prior to Nov. 14, 1959, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some small diversion for irrigation and some storage in several small lakes above station. 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	31	e31	e50	e130	e90	e100	86	56	56	31	18
2	20	35	e30	e60	e125	e90	e105	81	55	49	30	20
3	21	39	e29	e63	e120	e85	e105	75	56	45	29	20
4	21	41	e28	e67	e110	e80	e104	88	54	48	28	20
5	21	43	e28	e70	e100	e100	e104	90	53	42	29	19
6	21	44	e30	e73	e90	e130	e104	91	52	40	29	19
7	22	43	e34	e74	e80	e100	e103	97	51	37	30	17
8	22	41	e37	e73	e75	e80	e100	94	49	35	30	18
9	22	35	e39	e69	e78	69	e110	89	49	34	29	18
10	23	34	41	e59	e80	89	e110	92	46	32	24	19
11	23	33	50	e53	e82	84	e109	101	49	33	23	20
12	24	34	51	e60	e82	80	e108	100	44	32	24	22
13	24	34	48	e80	e87	80	e108	96	39	31	23	21
14	25	35	48	e90	e86	82	e108	91	33	29	19	20
15	27	35	48	e80	e74	84	e109	88	32	28	16	18
16	29	37	47	e70	e73	86	107	84	58	29	16	18
17	30	40	46	e70	e90	92	105	71	52	31	16	20
18	31	40	45	e75	e87	102	110	75	42	32	16	22
19	32	39	e44	e80	e89	115	104	69	37	36	16	18
20	31	38	e42	e75	e86	111	98	66	46	32	17	26
21	30	34	e40	e70	e83	108	95	76	51	31	20	21
22	31	33	e38	e60	e80	108	90	77	47	31	19	20
23	34	e32	e36	e50	e75	108	89	77	47	31	16	20
24	35	e31	e34	e52	e70	105	90	76	60	31	17	19
25	35	e30	e32	e55	e70	104	89	74	64	31	19	17
26	35	e29	e30	e58	e73	e110	86	70	60	32	19	16
27	36	e28	e30	e60	e80	e107	76	68	54	30	20	16
28	36	e30	e32	e68	e85	e105	72	66	53	29	19	17
29	38	e32	e35	e74	---	e104	71	63	50	30	19	17
30	34	e34	e38	e85	---	e104	72	61	49	31	19	17
31	29	---	e40	e100	---	e104	---	58	---	31	20	---
TOTAL	862	1,064	1,181	2,123	2,440	2,996	2,941	2,490	1,488	1,069	682	573
MEAN	27.8	35.5	38.1	68.5	87.1	96.6	98.0	80.3	49.6	34.5	22.0	19.1
MAX	38	44	51	100	130	130	110	101	64	56	31	26
MIN	20	28	28	50	70	69	71	58	32	28	16	16
AC-FT	1,710	2,110	2,340	4,210	4,840	5,940	5,830	4,940	2,950	2,120	1,350	1,140

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY)

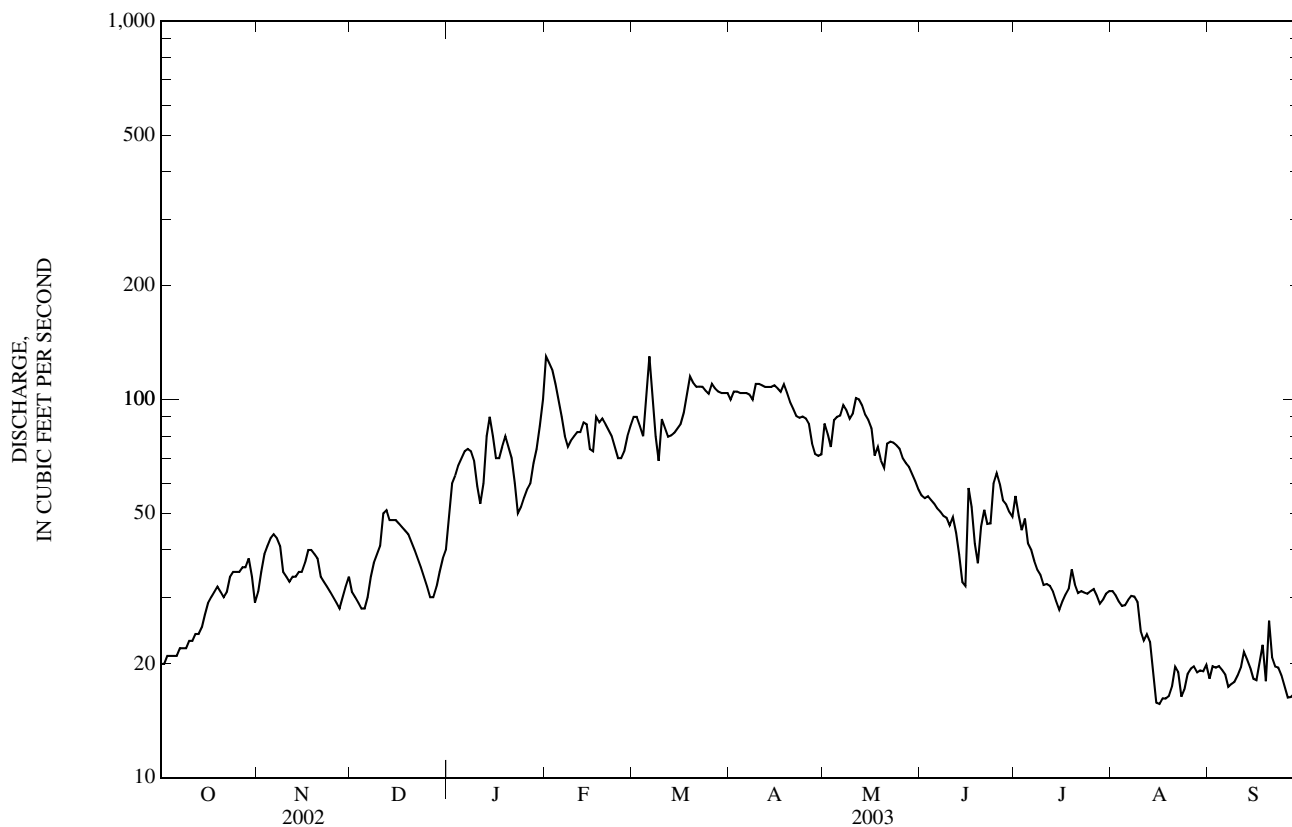
	MEAN	35.1	43.4	42.6	40.5	58.3	98.6	103	92.4	86.5	51.6	40.6	33.5
MAX		80.4	146	115	96.7	188	205	273	185	272	156	137	89.0
(WY)		(1999)	(1999)	(1999)	(1999)	(1997)	(1978)	(1977)	(1991)	(1997)	(1967)	(1983)	(1997)
MIN		18.0	21.3	12.5	18.5	19.2	33.5	27.3	28.5	20.3	16.2	15.1	16.5
(WY)		(1977)	(1977)	(1975)	(1981)	(1977)	(1981)	(1981)	(1992)	(1985)	(1974)	(1961)	(1975)

06449100 LITTLE WHITE RIVER NEAR VETAL, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	18,850		19,909		60.4	
ANNUAL MEAN	51.6		54.5		117	
HIGHEST ANNUAL MEAN					28.2	
LOWEST ANNUAL MEAN					1,200	
HIGHEST DAILY MEAN	190	Apr 1	130	Feb 1	9.0	May 16, 1991
LOWEST DAILY MEAN	20	Oct 1	16	Aug 15	9.6	Dec 24, 1974
ANNUAL SEVEN-DAY MINIMUM	21	Oct 1	17	Aug 14	3,540	Dec 19, 1974
MAXIMUM PEAK FLOW			155	Feb 1	12.53	May 16, 1991
MAXIMUM PEAK STAGE			^a 4.89	Feb 1		
ANNUAL RUNOFF (AC-FT)	37,390		39,490		43,790	
10 PERCENT EXCEEDS	109		101		117	
50 PERCENT EXCEEDS	39		46		45	
90 PERCENT EXCEEDS	25		20		21	

a Backwater from ice.

e Estimated.



06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD

LOCATION.--Lat 43° 19'32", long 100° 53'00", in SW¹/₄ NW¹/₄ sec.28, T.39 N., R.30 W., Todd County, Hydrologic Unit 10140203, on right bank at downstream side of bridge on U.S. Highway 18, 0.3 mi downstream from Scabby Creek, 0.7 mi downstream from Soldier Creek, and 6.4 mi north of Rosebud.

DRAINAGE AREA.--1,020 mi², approximately, of which about 760 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--May 1943 to current year. Prior to October 1965, published as South Fork White River near Rosebud.

REVISED RECORDS.--WSP 1056: Drainage area. WSP 1309: 1946(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,294.99 ft above NGVD of 1929. Prior to May 11, 1948, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Some small diversions for irrigation and some storage in several small lakes above 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	e82	114	149	e170	e240	181	185	123	110	62	63
2	65	e88	106	140	e200	e250	e180	184	121	109	62	60
3	67	e95	104	139	e200	e270	179	169	121	103	62	58
4	69	101	100	137	e190	e260	171	165	123	110	63	58
5	70	97	90	133	e180	e260	164	179	123	168	63	58
6	70	98	78	127	e170	e350	168	177	123	113	61	58
7	67	99	e85	131	e160	288	175	171	117	102	59	57
8	70	99	e95	134	e160	236	169	180	113	121	58	55
9	69	96	e100	136	e170	175	174	187	111	97	59	54
10	70	93	e108	132	e175	167	177	174	109	89	60	58
11	70	89	e114	e92	e180	228	180	172	115	86	58	58
12	72	90	e120	e68	e180	237	176	176	112	85	58	60
13	71	91	e120	e100	e190	220	170	175	105	83	58	62
14	72	94	e118	e119	e200	189	172	169	101	81	57	63
15	73	94	e115	e100	e205	195	173	163	97	77	53	63
16	76	95	e112	e90	e210	209	178	158	102	73	54	64
17	77	96	e110	e90	e200	201	170	154	107	74	55	65
18	79	96	e108	e100	e210	211	185	150	113	75	56	85
19	80	99	e105	e110	e240	232	190	148	96	77	59	76
20	82	99	e103	e100	e260	231	179	138	91	72	60	70
21	82	101	e100	e90	e280	219	171	132	112	70	59	67
22	83	101	e98	e80	e300	213	167	142	108	72	60	68
23	86	100	e95	e70	e270	203	172	179	102	71	58	70
24	88	e95	e92	e70	e240	198	171	318	196	66	54	68
25	88	e90	e90	e75	e200	191	167	171	188	65	57	67
26	88	e85	e92	e80	e200	186	161	157	146	62	57	64
27	89	e80	e100	e85	e210	198	156	146	133	62	56	65
28	89	e90	e120	e90	e230	189	149	140	124	62	54	65
29	e86	e100	e140	e100	---	179	149	133	121	64	56	66
30	e83	112	145	e120	---	180	171	128	117	74	69	69
31	e80	---	130	e150	---	181	---	125	---	66	65	---
TOTAL	2,377	2,845	3,307	3,337	5,780	6,786	5,145	5,145	3,570	2,639	1,822	1,914
MEAN	76.7	94.8	107	108	206	219	172	166	119	85.1	58.8	63.8
MAX	89	112	145	150	300	350	190	318	196	168	69	85
MIN	65	80	78	68	160	167	149	125	91	62	53	54
AC-FT	4,710	5,640	6,560	6,620	11,460	13,460	10,210	10,210	7,080	5,230	3,610	3,800

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2003, BY WATER YEAR (WY)

MEAN	82.8	92.5	88.2	84.6	118	196	188	166	155	101	80.0	74.2
MAX	146	227	190	152	348	396	401	302	511	228	164	120
(WY)	(1999)	(1999)	(1999)	(1999)	(1997)	(1949)	(1977)	(1995)	(1997)	(1944)	(1983)	(1997)
MIN	61.1	60.0	51.4	23.1	60.2	91.6	85.9	87.5	62.5	44.1	45.3	50.2
(WY)	(1979)	(1979)	(1993)	(1962)	(1949)	(1981)	(1981)	(1992)	(1985)	(1974)	(1973)	(1975)

06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1944 - 2003	
ANNUAL TOTAL	42,449		44,667		^a 119	
ANNUAL MEAN	116		122		207	
HIGHEST ANNUAL MEAN					78.0	
LOWEST ANNUAL MEAN					1,810	
HIGHEST DAILY MEAN	400	Apr 2	350	Mar 6	10	May 17, 1944
LOWEST DAILY MEAN	57	Aug 2	53	Aug 15	^b 10	Jan 4, 1949
ANNUAL SEVEN-DAY MINIMUM	59	Jul 28	56	Aug 12	16	Jan 18, 1962
MAXIMUM PEAK FLOW			^c 586	May 24	^d 4,640	Jun 11, 1967
MAXIMUM PEAK STAGE			^f 8.74	Feb 26	14.09	Jun 11, 1967
ANNUAL RUNOFF (AC-FT)	84,200		88,600		86,020	
10 PERCENT EXCEEDS	199		200		205	
50 PERCENT EXCEEDS	98		103		95	
90 PERCENT EXCEEDS	67		62		59	

a Median of annual mean discharges, 120 ft³/s.

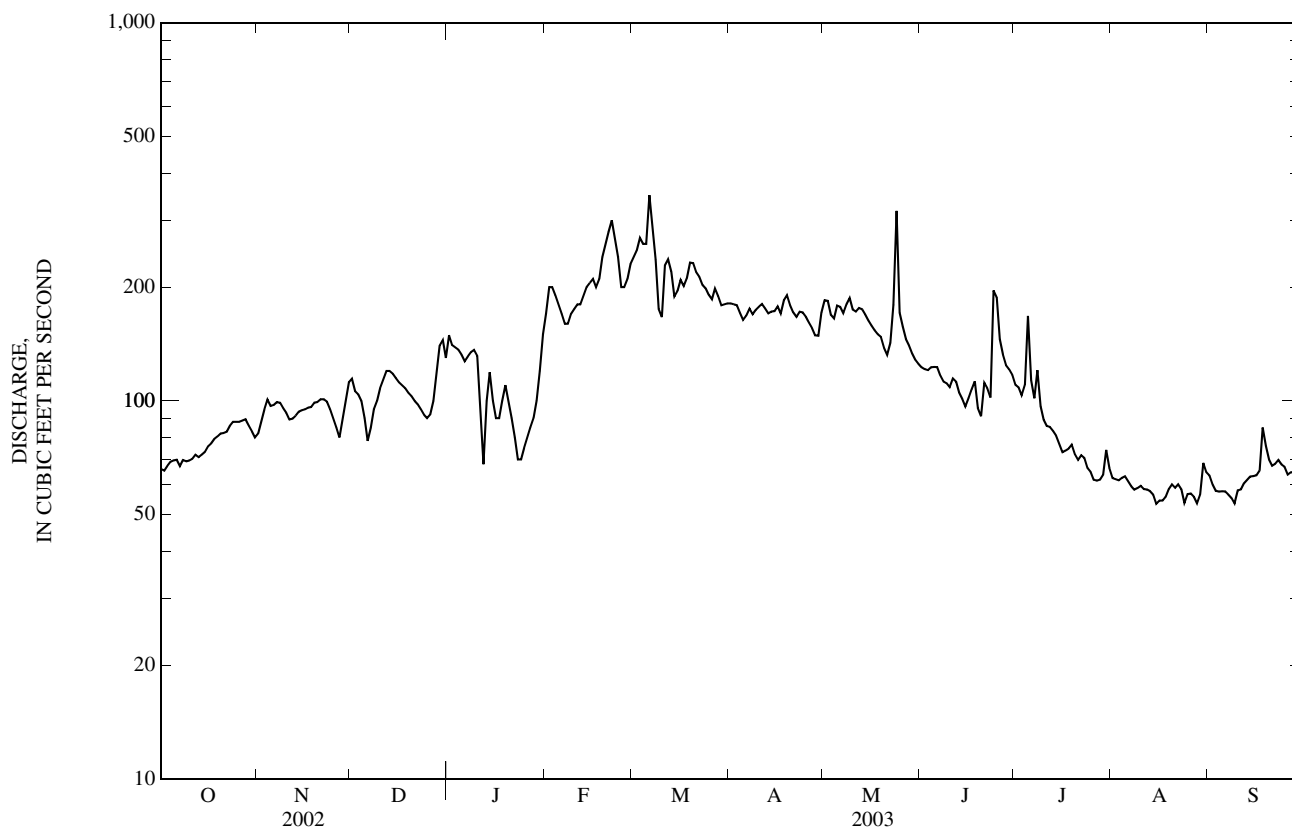
b Also Feb. 20, 1955.

c Gage height, 6.25 ft.

d From rating curve extended above 1,300 ft³/s.

e Estimated.

f Ice jam.



06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD

LOCATION.--Lat 43° 36'05", long 100° 44'58", in SW¹/₄ NW¹/₄ sec.23, T.42 N., R.29 W., Mellette County, Hydrologic Unit 10140203, on left bank at downstream side of bridge on U.S. Highway 83, 1.3 mi downstream from Pine Creek, and 2.0 mi north of town of White River.

DRAINAGE AREA.--1,570 mi², approximately, of which about 1,310 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--October 1949 to current year. Prior to October 1965, published as South Fork White River below White River.

REVISED RECORDS.--WDR SD-85-1: Location.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,912.78 ft above NGVD of 1929. Prior to June 8, 1968, gage located at site 0.8 mi downstream at datum 4.50 ft lower.

REMARKS.--Records good except those for Oct. 1-8, June 18-25, and Aug 2 to Sept. 30, which are fair, and those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Diurnal fluctuations caused by small powerplant 2.2 mi upstream. Several small diversions for irrigation and some storage in several small lakes above 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	e78	110	e150	e180	e270	171	189	129	100	55	72
2	98	e80	108	e160	e200	e300	175	208	104	96	59	48
3	105	e90	92	e170	e200	e350	177	191	114	93	61	56
4	119	e110	83	e160	e190	e320	175	171	116	105	61	54
5	112	101	72	e150	e180	e340	167	173	114	179	59	61
6	112	95	e70	e145	e170	e370	165	178	121	134	58	64
7	88	92	e75	e140	e160	e400	176	173	107	108	58	51
8	56	95	e80	e135	e150	e350	171	186	108	105	71	53
9	66	90	e85	e130	e152	e300	171	198	107	101	62	59
10	67	104	e90	e120	e155	e280	174	187	101	78	47	55
11	66	82	e93	e125	e160	e300	179	179	107	75	67	58
12	69	80	e97	e130	e165	e340	180	174	106	73	57	61
13	69	90	e100	e125	e170	e370	172	175	100	68	56	58
14	85	88	e98	e120	e175	e400	170	172	116	64	39	53
15	50	90	e94	e115	e180	374	175	162	90	65	34	61
16	79	92	e90	e105	e180	327	186	160	93	65	42	64
17	70	92	e87	e100	e200	237	180	147	96	58	43	64
18	74	90	e84	e105	e250	247	180	155	112	64	52	76
19	77	95	e80	e110	e300	320	229	145	99	62	53	84
20	76	90	e77	e100	e350	304	200	143	99	60	52	84
21	77	94	e73	e90	e400	221	177	126	99	56	65	78
22	80	97	e70	e80	e340	236	174	137	126	58	64	89
23	85	94	e67	e70	e290	205	170	140	111	58	66	67
24	84	90	e65	e80	e240	200	179	367	170	57	61	69
25	86	89	e67	e90	e200	197	164	235	241	50	63	43
26	86	90	e70	e100	e180	188	157	176	151	55	70	72
27	83	81	e75	e110	e200	195	153	151	130	51	67	59
28	83	88	e80	e120	e230	196	150	141	121	51	68	55
29	e80	119	e95	e130	---	180	147	128	114	51	60	97
30	e78	123	e115	e140	---	175	166	125	108	67	66	101
31	e75	---	e130	e160	---	180	---	122	---	71	101	---
TOTAL	2,536	2,789	2,672	3,765	5,947	8,672	5,210	5,314	3,510	2,378	1,837	1,966
MEAN	81.8	93.0	86.2	121	212	280	174	171	117	76.7	59.3	65.5
MAX	119	123	130	170	400	400	229	367	241	179	101	101
MIN	50	78	65	70	150	175	147	122	90	50	34	43
AC-FT	5,030	5,530	5,300	7,470	11,800	17,200	10,330	10,540	6,960	4,720	3,640	3,900

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2003, BY WATER YEAR (WY)

MEAN	83.7	92.6	93.4	89.7	135	261	237	218	215	115	79.7	74.1
MAX	160	271	225	175	590	815	613	614	988	574	182	140
(WY)	(1999)	(1999)	(1999)	(1999)	(1997)	(1978)	(1977)	(1983)	(1997)	(1962)	(1998)	(1997)
MIN	53.3	60.5	39.1	28.5	57.5	85.9	76.9	82.5	54.7	31.3	37.1	33.0
(WY)	(1977)	(1976)	(1952)	(1962)	(1962)	(1981)	(1981)	(1985)	(1985)	(1974)	(1974)	(1952)

06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1950 - 2003	
ANNUAL TOTAL	45,805		46,596		^a 141	
ANNUAL MEAN	125		128		305	
HIGHEST ANNUAL MEAN					79.0	
LOWEST ANNUAL MEAN					7,880	
HIGHEST DAILY MEAN	539	Mar 29	400	Feb 21	^b 7.0	Jun 3, 1997
LOWEST DAILY MEAN	39	Jul 25	34	Aug 15	^c 13,700	Jul 31, 1952
ANNUAL SEVEN-DAY MINIMUM	43	Jul 25	45	Aug 14	^d 11	Aug 31, 1952
MAXIMUM PEAK FLOW			600	Mar 14	^e 15.46	Jun 12, 1967
MAXIMUM PEAK STAGE			^f 5.47	Mar 14	102,300	
ANNUAL RUNOFF (AC-FT)	90,850		92,420		244	
10 PERCENT EXCEEDS	220		202		97	
50 PERCENT EXCEEDS	98		101		54	
90 PERCENT EXCEEDS	52		59			

a Median of annual mean discharges, 130 ft³/s.

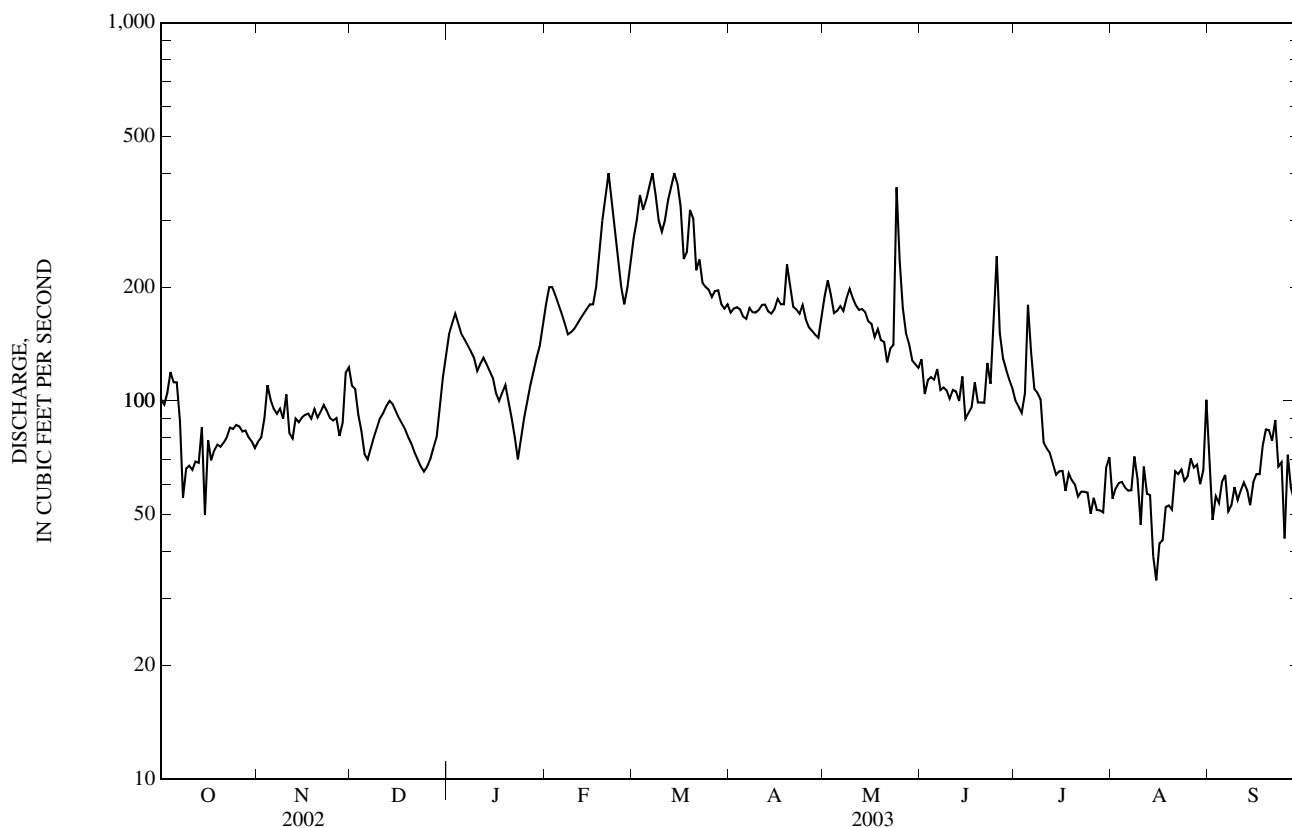
b Also Aug. 31 and Sept. 1, 1952.

c Gage height, 10.02 ft, site and datum then in use.

d Backwater from ice.

e Estimated.

f From floodmarks, present site and datum.



06452000 WHITE RIVER NEAR OACOMA, SD

LOCATION.--Lat 43°44'54", long 99°33'22", in SE¹/₄ SW¹/₄ sec.3, T.103 N., R.73 W., Lyman County, Hydrologic Unit 10140204, on left bank at downstream side of bridge on State Highway 47, 1.5 mi downstream from Wagner Draw, 1.8 mi upstream from high-water line of Lake Francis Case, and 8.8 mi southwest of Oacoma.

DRAINAGE AREA.--10,200 mi², approximately, of which about 9,940 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 786: Drainage area. WSP 1309: 1929-30(M).

GAGE.--Water-stage recorders and crest-stage gage. Datum of gage is 1,377.29 ft above NGVD of 1929. See WSP 1709, 1729, or 1917 for history of changes prior to Feb. 27, 1960.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Additional 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128	e85	e75	e130	e90	e250	346	408	258	403	45	17
2	118	e86	e120	e125	e85	e220	320	386	246	337	43	17
3	106	e115	e95	e120	e85	e220	297	304	238	288	35	19
4	99	e120	e110	e125	e80	e210	274	1,720	238	248	37	22
5	96	e115	e130	e130	e80	e200	264	2,870	251	210	42	27
6	91	146	e120	e135	e75	e200	263	1,670	226	204	34	22
7	86	141	e120	e140	e70	e210	284	1,090	203	343	e31	19
8	83	133	e110	e140	e70	e220	263	1,150	201	646	e28	17
9	87	143	e130	e135	e65	e210	254	2,520	194	1,350	e28	15
10	91	189	e145	e135	e60	e210	235	1,540	187	844	e25	17
11	81	265	e130	e130	e60	e220	220	1,010	237	741	e27	17
12	68	308	e120	e130	e60	e220	221	1,930	238	464	30	16
13	e70	301	e140	e125	e60	e250	225	1,930	211	344	20	16
14	e70	239	e165	e115	e65	e300	218	1,290	194	272	17	15
15	e74	198	e180	e110	e65	e500	204	1,140	179	230	13	15
16	e82	181	e190	e110	e65	e1,000	202	860	159	184	12	16
17	e72	162	e195	e105	e70	1,320	215	760	e147	163	14	17
18	76	151	e195	e100	e75	1,700	237	651	e147	131	12	21
19	58	140	e195	e95	e80	1,220	327	554	e140	120	24	25
20	68	131	e190	e90	e100	977	829	478	131	106	25	27
21	61	121	e185	e90	e150	1,660	742	459	168	94	25	29
22	63	116	e180	e90	e400	3,410	1,120	589	154	88	23	32
23	66	112	e175	e85	e1,200	1,770	810	631	136	75	26	34
24	67	e100	e165	e80	e1,000	1,350	699	450	194	68	17	33
25	73	e65	e155	e80	e700	994	605	427	429	61	14	30
26	75	e100	e150	e75	e500	756	471	388	701	57	16	29
27	76	e80	e150	e75	e400	614	362	484	574	54	14	44
28	82	e90	e140	e75	e300	527	302	484	528	51	14	62
29	84	e70	e145	e80	---	463	274	395	524	47	15	56
30	e80	e60	e140	e95	---	428	281	320	486	48	17	54
31	e84	---	e135	e90	---	391	---	282	---	49	18	---
TOTAL	2,515	4,263	4,575	3,340	6,110	22,220	11,364	29,170	7,919	8,320	741	780
MEAN	81.1	142	148	108	218	717	379	941	264	268	23.9	26.0
MAX	128	308	195	140	1,200	3,410	1,120	2,870	701	1,350	45	62
MIN	58	60	75	75	60	200	202	282	131	47	12	15
AC-FT	4,990	8,460	9,070	6,620	12,120	44,070	22,540	57,860	15,710	16,500	1,470	1,550

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2003, BY WATER YEAR (WY)

MEAN	194	167	93.3	82.1	332	1,330	1,050	1,352	1,299	502	309	197
MAX	1,217	1,445	449	592	3,146	5,856	4,726	13,630	5,985	3,553	1,702	1,074
(WY)	(1999)	(1999)	(1999)	(1997)	(1997)	(1978)	(1952)	(1942)	(1967)	(1962)	(1997)	(1999)
MIN	28.0	16.7	6.63	3.34	11.3	177	111	93.8	39.5	1.05	0.75	15.1
(WY)	(1938)	(1977)	(1976)	(1991)	(1950)	(1934)	(1981)	(1934)	(1989)	(1936)	(1936)	(1937)

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1929 - 2003	
ANNUAL TOTAL	118,404.5		101,317		^a 576	
ANNUAL MEAN	324		278		1,729	
HIGHEST ANNUAL MEAN					151	
LOWEST ANNUAL MEAN					44,000	
HIGHEST DAILY MEAN	3,570	May 5	3,410	Mar 22	Mar 30, 1952	
LOWEST DAILY MEAN	6.3	Aug 4	12	Aug 16	^b 0.00	
ANNUAL SEVEN-DAY MINIMUM	8.9	Jul 30	15	Aug 24	Aug 14, 1971	
MAXIMUM PEAK FLOW			4,820	Mar 21	^c 51,900	
MAXIMUM PEAK STAGE			10.98	Mar 21	^d 24.70	
ANNUAL RUNOFF (AC-FT)	234,900		201,000		417,500	
10 PERCENT EXCEEDS	684		699		1,220	
50 PERCENT EXCEEDS	166		135		169	
90 PERCENT EXCEEDS	43		25		32	

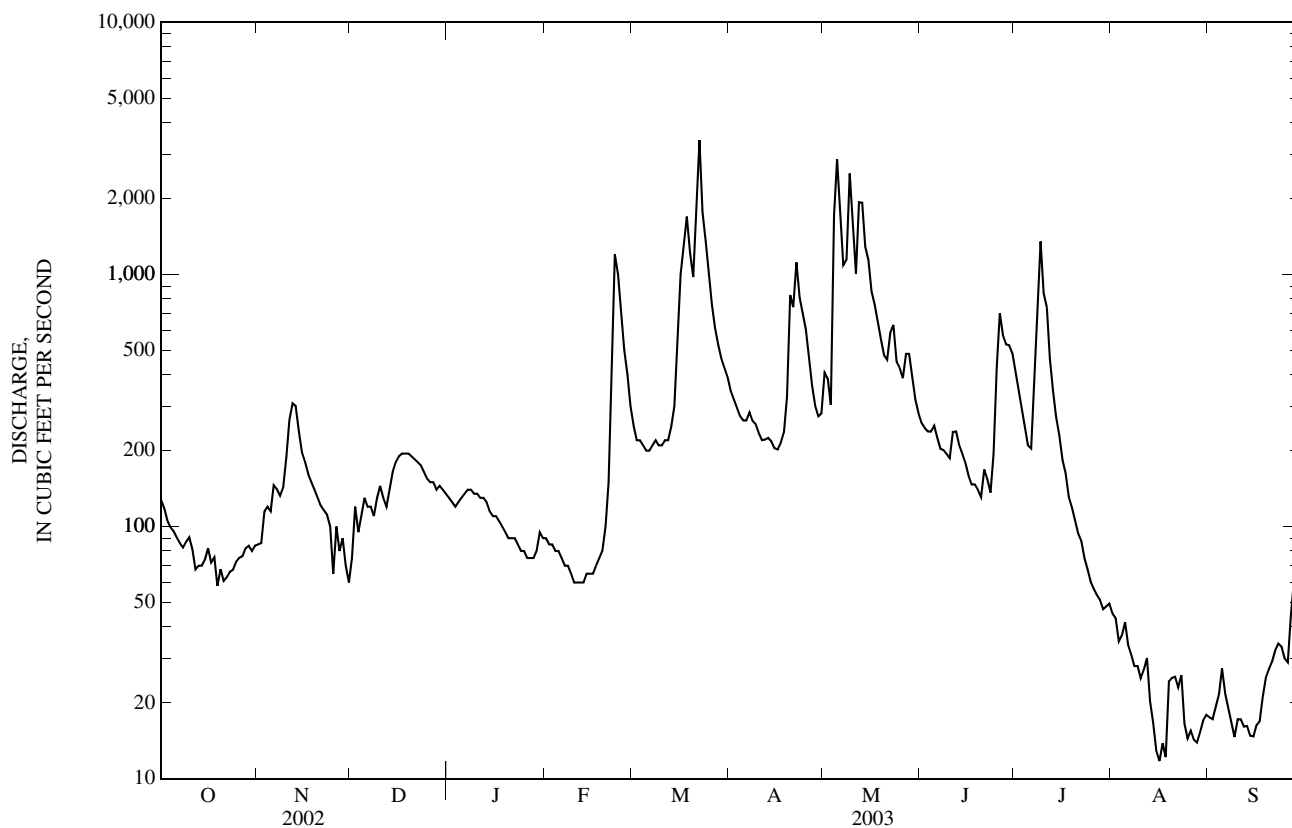
a Median of annual mean discharges, 480 ft³/s.

b No flow for some days in 1971, 1974, 1976, 1980, and 1989.

c Gage height, 15.40 ft, site and datum then in use.

d Ice jam.

e Estimated.



06452000 WHITE RIVER NEAR OACOMA, SD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1945 to September 1953, October 1968 to September 1969, October 1971 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to September 1976, October 1977 to Sept. 30, 1981.

WATER TEMPERATURE: October 1974 to September 1976, October 1978 to September 1988.

SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976, October 1981 to current year.

REMARKS.--Sediment discharge records fair except those for estimated daily concentrations and/or discharges, which are poor. Observer collects samples on a daily basis during open water periods. Flow affected by ice Oct. 30 to Nov. 5 and Nov. 24 to Mar. 16. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, U.S. Army Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,950 microsiemens, Aug. 8, 1980; minimum daily, 370 microsiemens, Mar. 17, 1975.

WATER TEMPERATURE: Maximum daily, 33.5°C, July 18, 1986; minimum daily, -1.0°C on many days during winter periods.

SEDIMENT CONCENTRATION: Maximum daily mean, 72,300 mg/L, Apr. 15, 1974; minimum daily mean, 11 mg/L, Aug. 5, 2002.

SEDIMENT LOAD: Maximum daily, 1,640,000 tons, May 17, 1982; 0 ton, July 17-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976, Aug. 11-23, Aug. 26 to Sept. 5, 1989.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 38,100 mg/L, Mar. 22; minimum daily mean, 90 mg/L, Jan. 7 to Feb. 15.

SEDIMENT LOAD: Maximum daily, 353,000 tons, Mar. 22; minimum daily, 9.1 tons, Aug. 18.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)
OCTOBER			NOVEMBER			DECEMBER			
1	128	4,670	1,610	e85	e490	112	e75	e795	161
2	118	e3,840	1,230	e86	e508	118	e120	e651	210
3	106	3,210	918	e115	e525	163	e95	e507	130
4	99	3,480	932	e120	e543	176	e110	382	113
5	96	3,400	879	e115	e561	174	e130	e356	125
6	91	e3,640	888	146	1,120	456	e120	e343	111
7	86	3,920	910	141	e1,460	556	e120	e331	107
8	83	3,950	879	133	e908	325	e110	e318	95
9	87	3,050	710	143	e1,100	424	e130	e306	107
10	91	1,350	334	189	e3,220	1,720	e145	e293	115
11	81	1,150	252	265	e6,680	4,830	e130	281	99
12	68	1,130	207	308	e9,450	7,880	e120	e268	87
13	e70	e1,000	189	301	8,600	7,010	e140	e254	96
14	e70	e853	161	239	e6,820	4,440	e165	e241	107
15	e74	722	144	198	e5,180	2,770	e180	e228	111
16	e82	e684	151	181	e4,630	2,260	e190	e215	110
17	e72	e658	128	162	e4,250	1,860	e195	e202	106
18	76	616	126	151	e3,880	1,580	e195	190	100
19	58	e492	78	140	e3,510	1,330	e195	e184	97
20	68	e357	65	131	e3,140	1,110	e190	e179	92
21	61	239	39	121	e2,760	904	e185	e173	87
22	63	215	37	116	2,420	760	e180	e168	82
23	66	e224	40	112	e2,210	667	e175	e163	77
24	67	e236	43	e100	e2,020	546	e165	e158	70
25	73	246	48	e65	e1,830	324	e155	e152	64
26	75	253	51	e100	e1,650	443	e150	e147	60
27	76	e299	62	e80	e1,460	316	e150	e142	58
28	82	e351	78	e90	e1,270	308	e140	e137	52
29	84	e403	91	e70	e1,090	206	e145	e132	51
30	e80	451	97	e60	939	152	e140	e126	48
31	e84	e472	107	---	---	---	e135	e121	44
TOTAL	2,515	---	11,484	4,263	---	43,920	4,575	---	2,972

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)
JANUARY			FEBRUARY			MARCH			
1	e130	e116	41	e90	e90	22	e250	e192	130
2	e125	e111	37	e85	e90	21	e220	e183	109
3	e120	e106	34	e85	e90	21	e220	e175	104
4	e125	e100	34	e80	e90	19	e210	e167	95
5	e130	e95	33	e80	e90	19	e200	e158	86
6	e135	91	33	e75	e90	18	e200	e163	88
7	e140	e90	34	e70	e90	17	e210	e243	138
8	e140	e90	34	e70	e90	17	e220	e336	199
9	e135	e90	33	e65	e90	16	e210	e428	243
10	e135	e90	33	e60	e90	15	e210	e521	296
11	e130	e90	32	e60	e90	15	e220	e614	365
12	e130	e90	32	e60	e90	15	e220	685	407
13	e125	e90	30	e60	e90	15	e250	797	538
14	e115	e90	28	e65	e90	16	e300	e2,810	2,270
15	e110	e90	27	e65	e90	16	e500	e5,240	7,050
16	e110	e90	27	e65	e92	16	e1,000	e7,670	20,600
17	e105	e90	26	e70	e102	19	1,320	10,300	37,200
18	e100	e90	24	e75	e114	23	1,700	12,500	57,800
19	e95	e90	23	e80	e126	27	1,220	9,500	31,500
20	e90	e90	22	e100	e138	37	977	7,290	19,300
21	e90	e90	22	e150	e170	69	1,660	14,200	99,700
22	e90	e90	22	e400	e325	349	3,410	e38,100	353,000
23	e85	e90	21	e1,200	e471	1,520	1,770	e34,900	167,000
24	e80	e90	19	e1,000	e440	1,190	1,350	31,000	114,000
25	e80	e90	19	e700	e380	722	994	24,100	65,400
26	e75	e90	18	e500	e320	434	756	17,100	35,200
27	e75	e90	18	e400	e260	282	614	12,800	21,400
28	e75	e90	18	e300	e206	168	527	7,860	11,200
29	e80	e90	19	---	---	---	463	6,860	8,600
30	e95	e90	23	---	---	---	428	e5,430	6,290
31	e90	e90	22	---	---	---	391	3,940	4,160
TOTAL	3,340	---	838	6,110	---	5,118	22,220	---	1,064,468
APRIL			MAY			JUNE			
1	346	e3,140	2,930	408	5,150	5,650	258	e4,710	3,290
2	320	2,380	2,060	386	3,610	3,790	246	2,600	1,730
3	297	1,420	1,140	304	2,960	2,430	238	1,650	1,060
4	274	1,270	944	1,720	e12,200	112,000	238	1,150	737
5	264	1,070	764	2,870	35,500	277,000	251	916	623
6	263	e980	696	1,670	28,500	129,000	226	e847	517
7	284	898	690	1,090	25,000	74,100	203	789	433
8	263	802	569	1,150	17,200	52,500	201	e709	385
9	254	765	525	2,520	15,000	103,000	194	614	322
10	235	691	438	1,540	10,500	44,200	187	532	268
11	220	704	418	1,010	e8,690	23,700	237	745	488
12	221	767	459	1,930	19,200	104,000	238	974	626
13	225	e797	483	1,930	21,100	110,000	211	1,310	739
14	218	834	491	1,290	18,700	65,200	194	3,060	1,600
15	204	900	497	1,140	16,500	50,900	179	e3,230	1,560
16	202	811	442	860	14,100	32,900	159	3,330	1,430
17	215	863	495	760	11,200	22,900	e147	3,730	1,480
18	237	1,630	1,040	651	e9,380	16,500	e147	3,260	1,290
19	327	1,080	942	554	7,500	11,200	e140	2,360	891
20	829	17,400	50,400	478	5,010	6,480	131	2,360	837
21	742	19,900	40,600	459	4,010	4,980	168	2,130	964
22	1,120	e25,300	77,200	589	5,470	9,470	154	e1,920	802
23	810	23,300	51,300	631	e8,710	14,900	136	1,790	660
24	699	17,700	33,300	450	e8,210	10,000	194	2,460	1,320
25	605	12,700	20,800	427	e7,700	8,890	429	5,790	7,060
26	471	11,600	14,700	388	e7,200	7,550	701	9,280	17,900
27	362	e8,930	8,800	484	6,930	9,050	574	4,940	7,610
28	302	6,510	5,320	484	e7,620	9,960	528	5,040	7,150
29	274	6,500	4,810	395	e8,410	8,990	524	e5,080	7,180
30	281	5,810	4,400	320	8,930	7,730	486	5,680	7,390
31	---	---	---	282	e7,090	5,410	---	---	---
TOTAL	11,364	---	327,653	29,170	---	1,344,380	7,919	---	78,342

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/ day)
JULY			AUGUST			SEPTEMBER			
1	403	8,560	9,290	45	e256	31	17	e926	44
2	337	9,880	8,990	43	e228	27	17	e1,030	48
3	288	8,240	6,430	35	e230	22	19	e1,140	59
4	248	e6,720	4,510	37	e415	41	22	e1,240	73
5	210	5,490	3,110	42	609	69	27	e1,310	97
6	204	e5,470	3,010	34	675	62	22	e1,310	76
7	343	5,930	5,560	e31	e593	50	19	e1,300	67
8	646	11,300	19,200	e28	e492	37	17	e1,290	58
9	1,350	e27,500	101,000	e28	e391	30	15	e1,280	50
10	844	25,800	58,800	e25	e291	20	17	1,200	56
11	741	23,300	46,800	e27	244	18	17	e1,090	51
12	464	20,000	25,100	30	e478	39	16	e1,060	46
13	344	e17,200	16,000	20	e433	24	16	e1,020	45
14	272	e14,500	10,700	17	e388	17	15	e986	39
15	230	12,000	7,470	13	e344	12	15	e951	38
16	184	10,000	4,980	12	e299	9.5	16	e916	40
17	163	8,100	3,590	14	e254	9.5	17	e881	40
18	131	e5,960	2,130	12	e254	9.1	21	e847	48
19	120	e4,490	1,460	24	e867	58	25	e812	55
20	106	e3,570	1,030	25	e944	64	27	e777	57
21	94	2,730	698	25	e889	61	29	e742	58
22	88	1,900	452	23	e833	52	32	e707	62
23	75	1,060	216	26	e778	54	34	e672	62
24	68	608	113	17	e722	32	33	661	59
25	61	312	51	14	e667	26	30	e745	60
26	57	271	41	16	e611	26	29	e840	66
27	54	e632	91	14	e556	21	44	4,080	554
28	51	1,010	140	14	e520	20	62	e17,200	2,890
29	47	1,140	145	15	e606	25	56	17,300	2,640
30	48	802	104	17	e713	33	54	17,200	2,520
31	49	340	45	18	e819	40	---	---	---
TOTAL	8,320	---	341,256	741	---	1,039.1	780	---	10,058
YEAR	101,317	3,231,528.1							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specific conductance, wat unf uS/cm 25 deg C (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)	Suspended sediment, sieve diameter percent <.063mm (70331)
OCT 03...	1220	104	548	8.5	9.5	3,040	842	100
NOV 13...	1305	311	499	14.5	2.5	8,580	7,200	100
JAN 06...	1345	138	504	7.0	0.0	90	1,670	99
MAR 13...	1240	239	451	11.5	0.0	547	323	99
31...	1425	385	526	26.5	9.5	3,740	3,510	100
MAY 06...	1320	1,550	856	15.0	14.0	27,300	113,000	98
JUN 20...	1325	131	637	23.5	24.0	2,420	856	100
AUG 11...	1525	24	801	27.0	31.5	172	14	100
SEP 10...	1255	19	633	25.5	22.5	1,190	60	100

THIS PAGE IS INTENTIONALLY BLANK

06452320 PLATTE CREEK NEAR PLATTE, SD

LOCATION.--Lat 43° 19'38", long 98° 58'13", in NW¹/₄ NW¹/₄ NE¹/₄ sec.11, T.98 N., R.69 W., Charles Mix County, Hydrologic Unit 10140101, on right bank at upstream side of bridge on State Highway 1804, 0.5 mi above high-water line of Fort Randall Reservoir, and 8.0 mi southwest of Platte.

DRAINAGE AREA.--741 mi².

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,370 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Some storage in Lake Platte, capacity, 100 acre-ft, 13.6 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.38	e0.45	e0.38	e0.35	0.62	5.7	0.10	0.10	0.00	0.01
2	0.00	0.00	0.34	e0.45	e0.40	e0.35	0.59	4.2	0.14	0.06	0.00	0.01
3	0.00	0.00	0.34	e0.50	e0.40	e0.35	0.60	2.4	0.16	0.04	0.00	0.02
4	0.01	0.00	0.34	e0.52	e0.38	e0.33	0.54	3.1	0.17	0.02	0.00	0.01
5	0.02	0.00	0.38	e0.50	e0.36	e0.31	0.59	2.6	0.13	0.09	0.00	0.01
6	0.02	0.00	0.39	e0.53	e0.34	e0.33	0.60	2.6	0.12	0.11	0.00	0.00
7	0.03	0.00	0.39	e0.55	e0.34	e0.35	0.97	1.8	0.10	0.06	0.00	0.00
8	0.02	0.00	0.40	e0.70	e0.34	e0.37	1.1	2.0	0.09	0.05	0.00	0.01
9	0.02	0.00	0.54	e0.80	e0.34	e0.35	1.3	8.4	0.09	0.04	0.00	0.01
10	0.01	0.00	0.56	e0.70	e0.34	e0.37	1.2	6.1	0.06	0.40	0.00	0.01
11	0.00	0.28	0.51	e0.60	e0.34	e0.40	1.4	3.2	0.04	0.78	0.00	0.02
12	0.00	0.51	0.45	e0.55	e0.35	e0.50	1.8	2.0	0.18	0.32	0.00	0.03
13	0.00	0.41	0.42	e0.50	e0.36	e2.0	1.6	1.6	0.12	0.16	0.00	0.03
14	0.00	0.31	0.39	e0.48	e0.38	e2.4	1.3	1.5	0.11	0.09	0.00	0.03
15	0.00	0.34	0.38	e0.45	e0.36	2.6	1.3	1.1	0.07	0.05	0.00	0.03
16	0.01	0.38	0.38	e0.42	e0.35	2.1	1.4	1.1	0.08	0.01	0.00	0.02
17	0.00	0.43	0.37	e0.40	e0.36	1.7	1.4	1.1	0.08	0.00	0.00	0.03
18	0.00	0.44	0.40	e0.40	e0.38	1.6	1.6	0.91	0.07	0.00	0.00	0.04
19	0.00	0.39	0.44	e0.42	e0.40	1.6	2.1	0.76	0.04	0.00	0.02	0.04
20	0.00	0.31	0.50	e0.40	e0.45	1.5	2.0	0.53	0.01	0.00	0.01	0.04
21	0.00	0.32	0.42	e0.37	e0.45	1.2	2.0	0.41	0.00	0.00	0.00	0.04
22	0.00	0.29	0.43	e0.34	e0.42	1.1	1.8	0.66	0.00	0.00	0.00	0.03
23	0.00	0.25	0.43	e0.30	e0.40	0.89	1.7	0.91	0.00	0.00	0.01	0.02
24	0.00	0.28	0.41	e0.30	e0.38	0.76	2.0	0.88	0.09	0.00	0.01	0.02
25	0.00	0.30	e0.40	e0.30	e0.36	0.58	2.2	0.72	0.47	0.00	0.01	0.02
26	0.00	0.33	e0.38	e0.30	e0.35	0.53	2.0	0.49	0.30	0.00	0.00	0.03
27	0.01	0.38	e0.38	e0.32	e0.35	0.51	1.5	0.52	0.98	0.00	0.00	0.03
28	0.00	0.43	e0.40	e0.34	e0.35	0.51	1.1	0.40	0.71	0.00	0.00	0.04
29	0.02	0.44	e0.45	e0.34	---	0.55	1.0	0.29	0.45	0.00	0.00	0.04
30	0.01	0.39	e0.50	e0.35	---	0.52	4.1	0.21	0.18	0.00	0.01	0.04
31	0.00	---	e0.48	e0.36	---	0.52	---	0.11	---	0.00	0.02	---
TOTAL	0.18	7.21	12.98	13.94	10.41	27.53	43.41	58.30	5.14	2.38	0.09	0.71
MEAN	0.006	0.24	0.42	0.45	0.37	0.89	1.45	1.88	0.17	0.077	0.003	0.024
MAX	0.03	0.51	0.56	0.80	0.45	2.6	4.1	8.4	0.98	0.78	0.02	0.04
MIN	0.00	0.00	0.34	0.30	0.34	0.31	0.54	0.11	0.00	0.00	0.00	0.00
AC-FT	0.4	14	26	28	21	55	86	116	10	4.7	0.2	1.4

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2003, BY WATER YEAR (WY)

MEAN	9.33	11.0	4.91	2.24	24.1	41.3	77.4	151	61.1	59.5	13.2	7.01
MAX	82.1	89.2	30.4	6.99	223	290	386	796	268	449	103	34.1
(WY)	(1996)	(1999)	(1999)	(1997)	(1997)	(1997)	(2001)	(1995)	(1995)	(1999)	(1998)	(1995)
MIN	0.000	0.002	0.003	0.009	0.021	0.39	0.26	0.014	0.011	0.019	0.000	0.000
(WY)	(1990)	(1991)	(1990)	(1992)	(1993)	(1992)	(1990)	(1992)	(1992)	(2002)	(1991)	(1989)

06452320 PLATTE CREEK NEAR PLATTE, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1989 - 2003	
ANNUAL TOTAL	875.31		182.28		^a 38.6	
ANNUAL MEAN	2.40		0.50		159	
HIGHEST ANNUAL MEAN					0.35	
LOWEST ANNUAL MEAN					2,370	
HIGHEST DAILY MEAN	38	Mar 31	8.4	May 9	^b 0.00	May 11, 1995
LOWEST DAILY MEAN	0.00	Jul 16	0.00	Oct 1	^c 0.00	Jul 9, 1989
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 11	0.00	Oct 17	^d 0.00	Aug 21, 1989
MAXIMUM PEAK FLOW			16	May 9	^e 2,600	May 11, 1995
MAXIMUM PEAK STAGE			2.44	May 9	^d 12.67	May 8, 1997
ANNUAL RUNOFF (AC-FT)	1,740		362		27,960	
10 PERCENT EXCEEDS	5.5		1.4		76	
50 PERCENT EXCEEDS	0.44		0.34		2.0	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

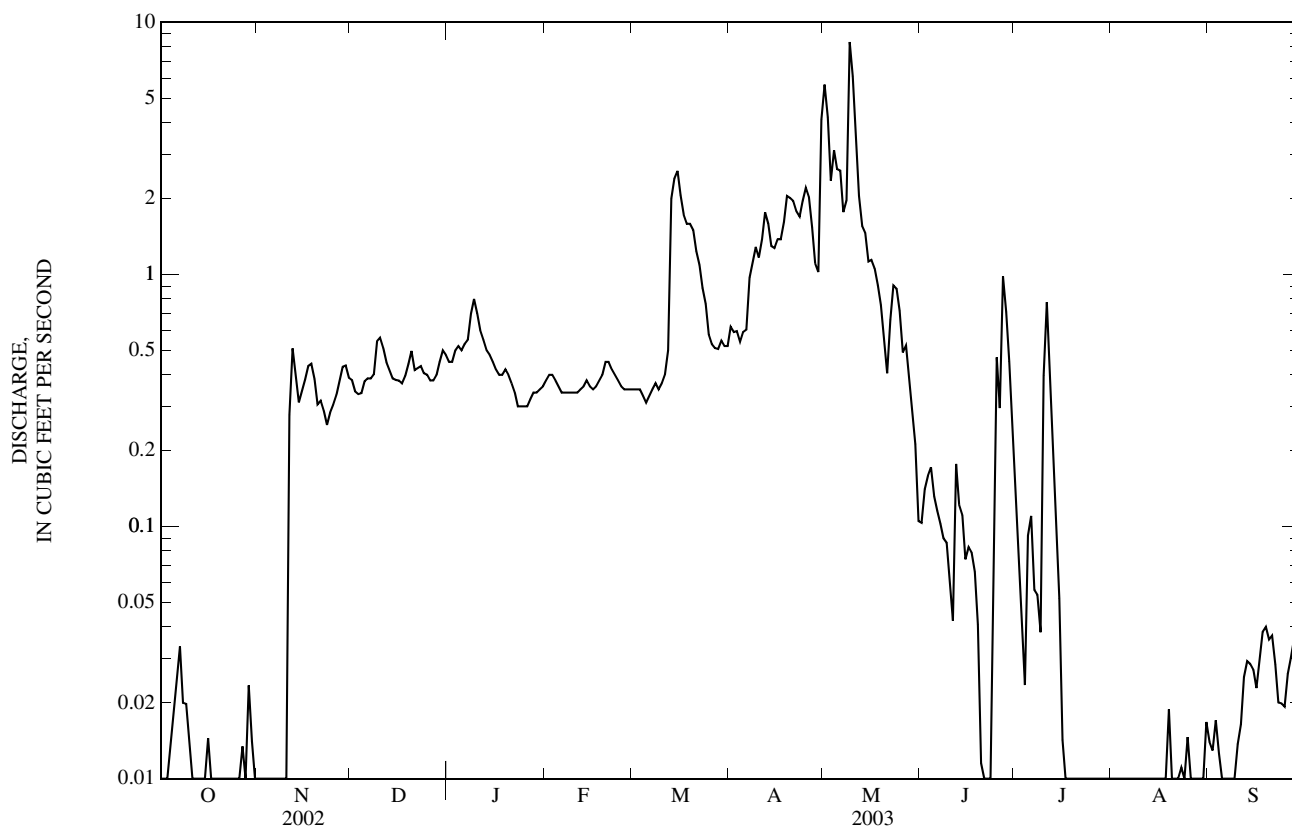
a Median of annual mean discharges, 11 ft³/s.

b No flow at times in most years.

c From rating curve extended above 975 ft³/s, gage height, 11.29 ft.

d Backwater from Lake Francis Case.

e Estimated.



06452500 LAKE FRANCIS CASE AT PICKSTOWN, SD

LOCATION.--Lat 43°04'05", long 98°33'15", in SE¹/₄ sec.5, T.95 N., R.65 W., Charles Mix County, Hydrologic Unit 10140101, in tower 6 of outlet works at Fort Randall Dam, on Missouri River at Pickstown, 1.0 mi upstream from Randall Creek, and at mile 880.0.

DRAINAGE AREA.--263,500 mi², approximately.

PERIOD OF RECORD.--December 1952 to current year (monthend contents only). Prior to October 1964, published as Fort Randall Reservoir at Pickstown.

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929. Prior to Mar. 25, 1953, elevations determined from temporary nonrecording gages.

REMARKS.--Reservoir is formed by earthfill dam; storage began in December 1952; initial closure made July 1952. Maximum capacity, 5,574,000 acre-ft below elevation 1,375.0 ft (top of spillway gates). Normal maximum, 4,589,000 acre-ft below elevation 1,365.0 ft. Inactive storage, 1,184,000 acre-ft below elevation 1,310.0 ft. No dead storage; elevation of invert of lowest outlet is 1,227.0 ft. Figures given herein represent elevations at outlet works and total contents adjusted for wind effect.

The spillway consists of 21 taintor gates, each 40 ft wide by 29 ft high; spillway capacity, 490,000 ft³/s at pool elevation 1,375 ft. Crest of spillway is at elevation 1,346 ft. Normal releases are through 12 tunnels 22 ft in diameter. Installation of power units in 8 of these tunnels was completed in January 1956; maximum release through power tunnels is 46,000 ft³/s; maximum release through 4 other tunnels is 130,000 ft³/s at pool elevation 1,375 ft. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,102,000 acre-ft, May 6, 1997; maximum elevation, 1,372.17 ft, May 7, 1997; minimum since initial filling, 1,450,000 acre-ft, Oct. 23, 1956, affected by wind.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,501,000 acre-ft, Apr. 25; minimum contents, 2,161,000 acre-ft, Nov. 14.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,350.74	3,181,000	--
Oct. 31	1,338.24	2,334,000	-847,000
Nov. 30	1,338.99	2,375,000	+41,000
Dec. 31	1,342.18	2,577,000	+202,000
CAL YR 2002	--	--	-108,000
Jan. 31	1,345.26	2,780,000	+203,000
Feb. 28	1,349.74	3,105,000	+325,000
Mar. 31	1,353.64	3,417,000	+312,000
Apr. 30	1,354.53	3,486,000	+69,000
May 31	1,351.91	3,278,000	-208,000
June 30	1,352.84	3,359,000	+81,000
July 31	1,353.87	3,434,000	+75,000
Aug. 31	1,353.82	3,434,000	0
Sept. 30	1,353.05	3,367,000	-67,000
WTR YR 2003.	--	--	+186,000

NOTE.--LAKE FROZEN OVER JAN. 17 TO MAR. 24.

THIS PAGE IS INTENTIONALLY BLANK

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD

LOCATION.--Lat 43°03'54", long 98°33'11", in NW¹/₄ NE¹/₄ sec.8, T.95 N., R.65 W., Charles Mix County, Hydrologic Unit 10170101, in powerhouse of Fort Randall Dam on Missouri River at Pickstown, 0.8 mi upstream from Randall Creek, and at mile 879.8.

DRAINAGE AREA.--263,500 mi², approximately.

REMARKS.--On July 22, 2003, a field duplicate sample was collected at this site for quality-control purposes. The analytical results for the field duplicate sample are noted in the water-quality results.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specific conductance, wat unf uS/cm 25 deg C (00095)	pH, water, unfltrd field, std units (00400)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Hardness, water, unfltrd mg/L as CaCO ₃ (00900)	Noncarbohardness, wat flt field, mg/L as CaCO ₃ (00904)	Alkalinity, wat flt inc tit field, mg/L as CaCO ₃ (39086)	ANC, wat unfixed end pt, lab, mg/L as CaCO ₃ (90410)
NOV 05...	1050	29,700	750	8.5	5.5	9.8	726	10.9	101	220	50	172	173
FEB 25...	1220	17,800	785	8.6	-3.5	1.7	735	15.2	113	250	73	179	201
APR 22...	1150	28,500	765	8.4	14.5	5.6	733	13.5	112	250	74	175	181
JUN 09...	1430	35,500	756	8.2	22.0	15.3	720	9.8	104	230	65	163	173
JUL 22...	1110	28,800	778	8.2	23.5	21.3	733	7.1	83	250	88	167	175
^a 22...	1115	--	--	--	--	--	--	--	--	250	85	168	175
SEP 22...	1250	27,500	739	8.3	17.0	21.1	738	8.5	99	230	63	163	164

Date	Chlorophyll a phytoplankton, fluoro, ug/L (70953)	Pheophytin a, phytoplankton, ug/L (62360)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium, percent (00932)	Sodium adsorption ratio (00931)	Potassium, water, fltrd, mg/L (00935)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)
NOV 05...	--	--	52.5	22.2	73.0	41	2	4.84	197	6	211	10.1	0.6
FEB 25...	--	--	60.8	24.2	75.9	39	2	4.94	210	4	210	9.56	0.6
APR 22...	1.5	0.3	59.5	24.2	76.7	40	2	5.31	213	--	206	10.5	0.6
JUN 09...	0.7	0.2	55.0	22.0	71.9	40	2	5.07	199	--	200	10.7	0.6
JUL 22...	0.6	2.2	61.3	24.6	77.0	39	2	5.01	203	--	204	11.1	0.6
^a 22...	0.7	0.5	61.5	24.2	75.9	39	2	5.09	205	--	205	11.3	0.6
SEP 22...	1.5	0.4	51.3	23.6	65.9	38	2	4.96	198	--	199	11.5	0.6

Date	Silica, water, fltrd, mg/L (00955)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue on evap. at 180 deg C wat flt mg/L (70300)	Residue water, fltrd, tons/d (70302)	Ammonia water, fltrd, mg/L as N (00608)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, ug/L (01106)
NOV 05...	5.8	484	501	40,200	<0.04	0.23	0.20	<0.008	E.04	<0.04	E.02	<0.02	<2
FEB 25...	5.6	499	514	24,700	<0.04	0.21	0.20	<0.008	<0.06	E.04	<0.04	<0.02	<2
APR 22...	5.6	493	501	38,600	E.010	0.23	0.19	<0.008	<0.06	0.005	E.003	<0.007	<2
JUN 09...	4.7	468	490	47,000	0.019	0.22	0.22	<0.008	<0.06	0.012	0.007	<0.007	E1
JUL 22...	4.7	488	495	38,500	E.009	0.20	0.20	<0.008	E.03	0.007	E.003	<0.007	E1
^a 22...	4.8	489	493	--	E.009	0.23	0.19	<0.008	E.03	0.013	E.003	<0.007	E1
SEP 22...	5.5	460	486	36,100	<0.015	0.21	0.26	<0.008	<0.06	0.008	E.004	<0.007	M

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

[illegible]

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ethal- flur- alin, water, fltrd 0.7u GF ug/L (82663)	Etho- prop, water, fltrd 0.7u GF ug/L (82672)	Fipro- nil, water, fltrd, ug/L (62166)	Fipro- nil sulfide water, fltrd, ug/L (62167)	Fipro- nil sulfone water, fltrd, ug/L (62168)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala- thion, water, fltrd, ug/L (39532)	Metola- chlor, water, fltrd, ug/L (39415)	Metri- buzin, water, fltrd, ug/L (82630)	Moli- nate, water, fltrd 0.7u GF ug/L (82671)	Para- thion, water, fltrd, ug/L (39542)
NOV 05...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 25...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR 22...	<0.009	<0.005	<0.007	<0.005	<0.005	<0.003	<0.004	<0.035	<0.027	E.004	<0.006	<0.002	<0.010
JUN 09...	<0.009	<0.005	<0.007	<0.005	<0.005	<0.003	<0.004	<0.035	<0.027	E.007	<0.006	<0.002	<0.010
JUL 22...	--	--	--	--	--	--	--	--	--	--	--	--	--
^a 22...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 22...	--	--	--	--	--	--	--	--	--	--	--	--	--
Date	Methyl para- thion, water, fltrd 0.7u GF ug/L (82667)	Naprop- amide, water, fltrd 0.7u GF ug/L (82684)	Peb- ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi- meth- alin, water, fltrd 0.7u GF ug/L (82683)	cis- Per- methrin water fltrd 0.7u GF ug/L (82687)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome- ton, water, fltrd, ug/L (04037)	Pron- amide, water, fltrd 0.7u GF ug/L (82676)	Propa- chlor, water, fltrd, ug/L (04024)	Pro- panil, water, fltrd 0.7u GF ug/L (82679)	Propar- gite, water, fltrd 0.7u GF ug/L (82685)	Sima- zine, water, fltrd, ug/L (04035)	Tebu- thiuron water fltrd 0.7u GF ug/L (82670)
NOV 05...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 25...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR 22...	<0.006	<0.007	<0.004	<0.022	<0.006	<0.011	M	<0.004	<0.010	<0.011	<0.02	<0.005	<0.02
JUN 09...	<0.006	<0.007	<0.004	<0.022	<0.006	<0.011	M	<0.004	<0.010	<0.011	<0.02	<0.005	<0.02
JUL 22...	--	--	--	--	--	--	--	--	--	--	--	--	--
^a 22...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 22...	--	--	--	--	--	--	--	--	--	--	--	--	--
Date	Terba- cil, water, fltrd 0.7u GF ug/L (82665)	Terbu- fos, water, fltrd 0.7u GF ug/L (82675)	Thio- bencarb water fltrd 0.7u GF ug/L (82681)	Tri- allate, water, fltrd 0.7u GF ug/L (82678)	Tri- flur- alin, water, fltrd 0.7u GF ug/L (82661)	Sus- pended sedi- ment concen- tration mg/L (80154)	Suspnd. sedi- ment, sieve diametr percent <.063mm (70331)						
NOV 05...	--	--	--	--	--	2	90						
FEB 25...	--	--	--	--	--	1	90						
APR 22...	<0.034	<0.02	<0.005	<0.002	<0.009	1	81						
JUN 09...	<0.034	<0.02	<0.005	<0.002	<0.009	3	88						
JUL 22...	--	--	--	--	--	4	97						
^a 22...	--	--	--	--	--	--	--						
SEP 22...	--	--	--	--	--	--	--						

< Less than.

a Field duplicate sample collected for quality-control purposes.

E Estimated value.

M Presence verified, not quantified.

THIS PAGE IS INTENTIONALLY BLANK

06453020 MISSOURI RIVER BELOW GREENWOOD, SD

LOCATION.--Lat 42° 54'19", long 98° 20'58", in SE¹/₄ NE¹/₄ NE¹/₄ sec.1, T.93 N., R.64 W., Charles Mix County, Hydrologic Unit 10170101, on left bank 2.0 mi downstream from Greenwood and 1.3 mi downstream from the mouth of Slaughter Creek.

PERIOD OF RECORD.--October 1989 to current year.

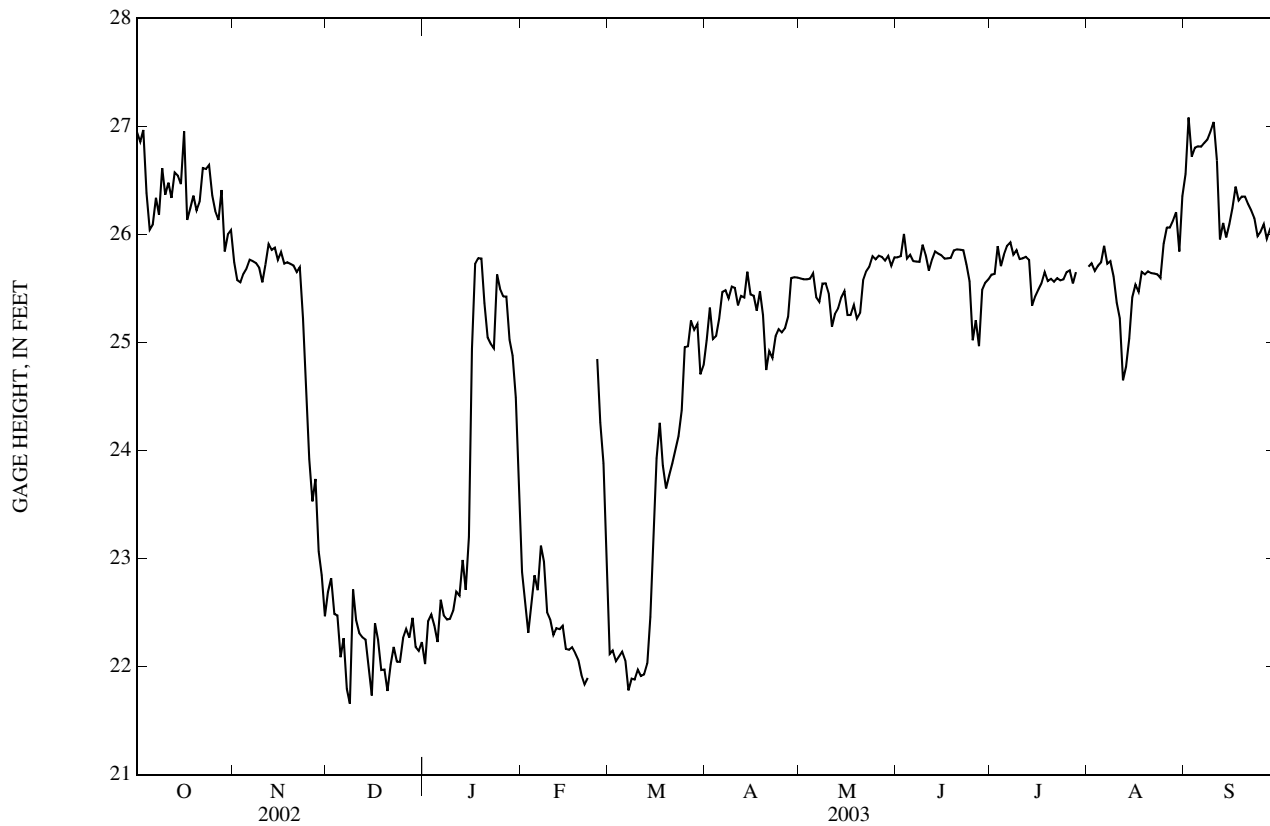
GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above NGVD of 1929.

REMARKS.--Records fair. U.S. Army Corps of Engineers satellite data-collection platform at station. Stage regulated by Fort Randall Dam about 17 mi upstream.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.95	25.74	22.69	22.02	22.88	22.12	25.02	25.59	25.79	25.63	25.70	26.56
2	26.86	25.58	22.82	22.42	22.59	22.15	25.32	25.59	25.80	25.64	25.73	27.08
3	26.97	25.56	22.49	22.48	22.31	22.05	25.03	25.58	26.00	25.89	25.66	26.72
4	26.38	25.64	22.47	22.38	22.57	22.10	25.06	25.59	25.78	25.71	25.71	26.80
5	26.04	25.69	22.09	22.23	22.85	22.14	25.22	25.64	25.81	25.81	25.74	26.82
6	26.09	25.76	22.26	22.62	22.71	22.06	25.47	25.42	25.75	25.90	25.89	26.81
7	26.34	25.75	21.79	22.47	23.12	21.78	25.48	25.38	25.75	25.93	25.73	26.85
8	26.18	25.73	21.66	22.44	22.97	21.89	25.41	25.54	25.75	25.81	25.75	26.88
9	26.61	25.69	22.71	22.44	22.50	21.88	25.52	25.55	25.90	25.85	25.61	26.95
10	26.37	25.56	22.43	22.52	22.44	21.97	25.50	25.45	25.81	25.77	25.37	27.04
11	26.48	25.72	22.31	22.69	22.29	21.91	25.34	25.15	25.67	25.78	25.22	26.69
12	26.34	25.91	22.27	22.66	22.36	21.93	25.43	25.27	25.77	25.79	24.65	25.95
13	26.57	25.86	22.25	22.99	22.35	22.03	25.42	25.32	25.84	25.76	24.78	26.11
14	26.54	25.88	22.00	22.71	22.38	22.46	25.65	25.41	25.82	25.34	25.04	25.97
15	26.47	25.76	21.73	23.20	22.16	23.27	25.44	25.47	25.81	25.43	25.42	26.10
16	26.95	25.84	22.40	24.94	22.15	23.93	25.43	25.25	25.78	25.49	25.54	26.24
17	26.13	25.73	22.25	25.73	22.18	24.26	25.29	25.25	25.78	25.55	25.47	26.44
18	26.24	25.74	21.97	25.78	22.12	23.86	25.47	25.35	25.78	25.65	25.65	26.31
19	26.36	25.73	21.97	25.78	22.06	23.65	25.25	25.22	25.85	25.57	25.63	26.35
20	26.22	25.71	21.77	25.36	21.92	23.77	24.75	25.27	25.86	25.59	25.66	26.35
21	26.30	25.65	22.02	25.05	21.83	23.88	24.92	25.58	25.86	25.56	25.64	26.28
22	26.61	25.70	22.18	24.99	21.89	24.01	24.86	25.66	25.85	25.59	25.64	26.22
23	26.61	25.22	22.04	24.94	---	24.13	25.06	25.70	25.72	25.57	25.63	26.15
24	26.64	24.47	22.04	25.63	---	24.37	25.12	25.80	25.57	25.58	25.60	25.99
25	26.36	23.92	22.27	25.50	24.85	24.96	25.09	25.77	25.02	25.65	25.91	26.02
26	26.22	23.53	22.35	25.43	24.26	24.96	25.13	25.80	25.21	25.67	26.06	26.09
27	26.13	23.74	22.27	25.42	23.88	25.20	25.24	25.79	24.97	25.55	26.06	25.96
28	26.41	23.07	22.45	25.02	22.97	25.12	25.60	25.76	25.49	25.65	26.13	26.05
29	25.84	22.84	22.18	24.88	---	25.17	25.60	25.80	25.55	---	26.20	26.11
30	26.00	22.47	22.15	24.49	---	24.70	25.60	25.71	25.58	---	25.84	26.17
31	26.04	---	22.23	23.58	---	24.79	---	25.79	---	---	26.35	---
MEAN	26.40	25.17	22.21	23.90	---	23.31	25.29	25.53	25.70	---	25.65	26.40
MAX	26.97	25.91	22.82	25.78	---	25.20	25.65	25.80	26.00	---	26.35	27.08
MIN	25.84	22.47	21.66	22.02	---	21.78	24.75	25.15	24.97	---	24.65	25.95

06453020 MISSOURI RIVER BELOW GREENWOOD, SD—Continued



06453255 CHOTEAU CREEK NEAR AVON, SD

LOCATION.--Lat 42° 55' 24", long 98° 06' 21", in NW¹/₄ NW¹/₄ NW¹/₄ sec.31, T.94 N., R.61 W., Bon Homme County, Hydrologic Unit 10170101, on left bank at downstream side of highway bridge, 6.3 mi southwest of Avon, 0.7 mi downstream from Dry Choteau Creek, and 12.7 mi upstream from mouth.

DRAINAGE AREA.--602 mi².

PERIOD OF RECORD.--October 1982 to September 2003 (discontinued).

REVISED RECORDS.--WDR SD-86-1: 1984(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,290 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.91	1.3	1.2	1.8	1.1	2.8	0.73	3.5	0.79	7.6	12	0.63
2	1.1	1.3	1.2	1.8	1.5	2.9	0.67	4.0	0.79	6.1	11	0.58
3	1.3	1.4	1.2	1.8	1.7	2.7	0.78	2.4	0.99	4.3	8.8	0.57
4	2.3	1.5	1.2	1.8	1.5	2.3	0.76	5.3	1.2	3.6	7.2	0.63
5	1.3	1.5	1.3	1.7	1.4	1.9	0.85	6.1	1.2	3.9	5.2	0.63
6	1.1	1.8	1.2	1.6	1.4	2.3	1.9	5.1	1.2	44	3.9	0.60
7	1.1	1.4	1.3	1.7	1.4	e2.3	1.6	6.2	1.2	34	3.3	0.60
8	1.1	1.4	1.3	1.8	1.2	2.3	1.3	6.0	1.3	56	2.1	0.56
9	1.1	1.3	1.3	e1.4	1.2	2.2	1.1	4.9	1.2	66	1.8	0.78
10	1.1	1.2	1.3	e1.3	1.2	2.0	1.0	3.7	1.3	68	1.7	1.3
11	1.0	1.3	1.3	e1.3	1.2	7.2	0.92	6.6	1.2	64	1.5	0.76
12	0.96	1.3	1.4	e1.4	1.1	6.7	0.87	14	1.1	50	1.2	0.60
13	1.0	e1.3	1.4	e1.4	1.1	4.3	0.88	11	1.1	40	1.1	0.59
14	0.98	e1.2	1.4	1.5	2.5	7.3	0.95	20	1.0	33	0.90	0.58
15	1.1	1.2	1.4	1.5	3.3	7.1	0.99	12	1.1	28	0.83	0.53
16	1.4	1.3	1.5	e1.5	1.7	5.0	1.1	13	1.1	23	0.74	0.52
17	1.1	1.3	1.6	e1.4	2.3	3.6	1.2	22	1.1	35	0.67	0.52
18	1.1	1.3	1.7	e1.4	14	3.0	1.3	17	1.0	61	0.61	0.64
19	1.0	1.2	1.6	e1.4	23	2.8	2.3	17	1.0	74	0.62	0.55
20	0.95	1.2	1.5	1.4	22	2.6	2.3	14	0.91	81	0.59	0.55
21	0.96	1.4	1.5	1.2	17	2.8	2.7	5.8	0.98	76	0.54	0.55
22	1.1	1.3	1.5	e1.1	e9.0	4.0	2.5	3.9	8.1	66	0.58	0.49
23	1.1	1.3	1.6	e1.2	4.5	3.4	2.0	2.4	19	54	0.59	0.58
24	1.1	1.3	1.6	e1.1	3.7	3.1	2.3	1.8	11	45	0.53	0.53
25	1.1	1.4	1.6	e1.0	3.1	3.1	2.4	1.5	8.8	37	0.57	0.44
26	1.1	1.3	1.7	e0.88	2.9	2.9	2.2	1.4	19	31	0.62	0.43
27	1.2	1.4	1.7	e0.94	2.8	2.5	2.5	1.3	29	27	0.62	0.48
28	1.3	1.4	1.7	0.95	2.8	2.2	3.2	1.1	22	24	0.55	0.48
29	1.3	1.3	1.7	e0.96	---	1.8	3.3	0.92	17	20	0.49	0.49
30	1.4	e1.2	1.9	0.98	---	0.81	4.0	0.80	11	17	0.56	0.62
31	1.3	---	1.8	1.0	---	0.76	---	0.91	---	14	0.59	---
TOTAL	35.96	40.0	45.6	42.21	131.6	100.67	50.60	215.63	167.66	1,193.5	72.00	17.81
MEAN	1.16	1.33	1.47	1.36	4.70	3.25	1.69	6.96	5.59	38.5	2.32	0.59
MAX	2.3	1.8	1.9	1.8	23	7.3	4.0	22	29	81	12	1.3
MIN	0.91	1.2	1.2	0.88	1.1	0.76	0.67	0.80	0.79	3.6	0.49	0.43
AC-FT	71	79	90	84	261	200	100	428	333	2,370	143	35

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2003, BY WATER YEAR (WY)

MEAN	6.31	7.56	4.85	2.88	21.2	146	177	126	113	70.5	10.7	10.6
MAX	42.0	81.6	34.2	8.71	125	914	832	865	910	502	89.4	98.2
(WY)	(1987)	(1999)	(1999)	(1999)	(1997)	(1987)	(2001)	(1995)	(1984)	(1993)	(1993)	(1986)
MIN	0.23	0.071	0.22	0.028	0.70	0.62	0.42	1.17	1.38	0.24	0.067	0.027
(WY)	(1993)	(1993)	(1993)	(1993)	(1992)	(1991)	(1992)	(1989)	(2002)	(1991)	(1991)	(1991)

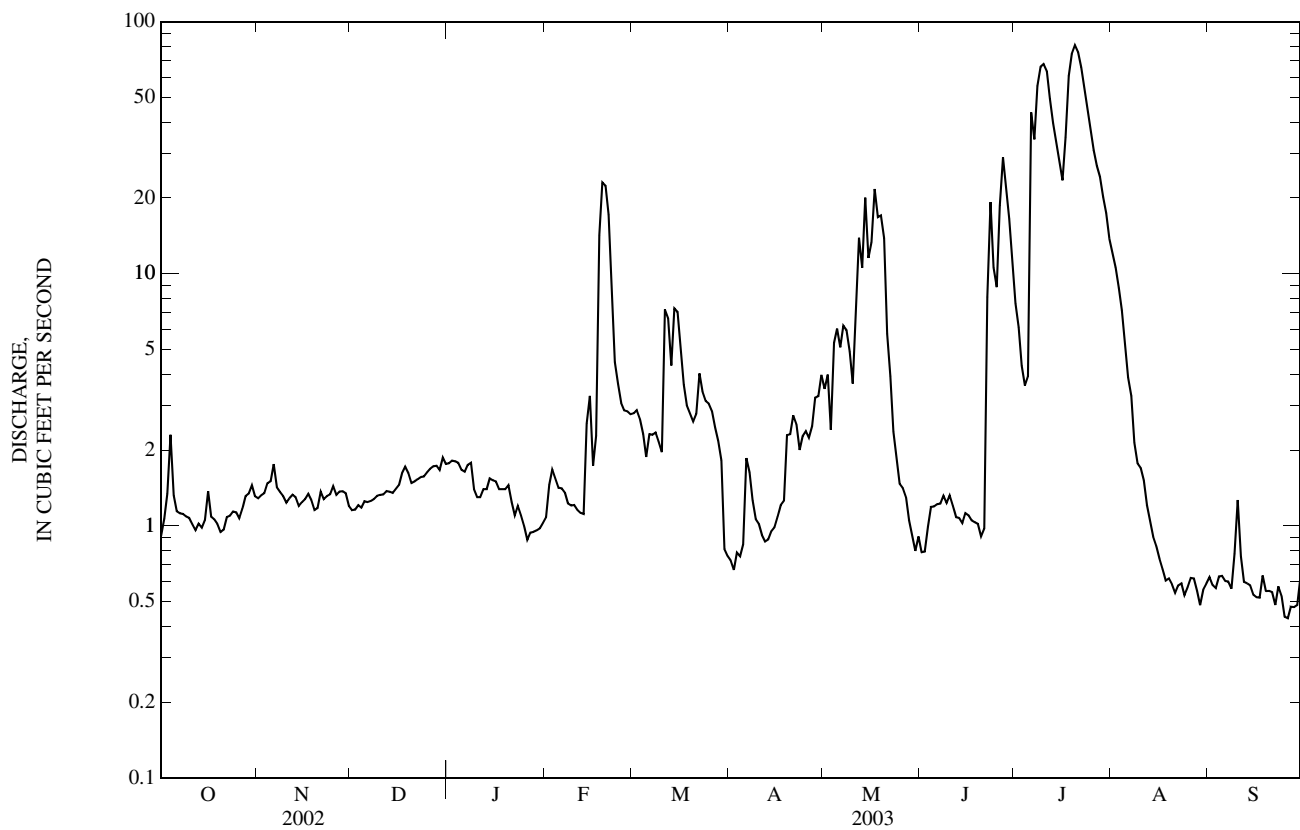
06453255 CHOTEAU CREEK NEAR AVON, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003	
ANNUAL TOTAL	2,091.87		2,113.24		^a 58.1	
ANNUAL MEAN	5.73		5.79		168	
HIGHEST ANNUAL MEAN					1.13	
LOWEST ANNUAL MEAN					5,020	
HIGHEST DAILY MEAN	59	Apr 8	81	Jul 20	Mar 27, 1987	
LOWEST DAILY MEAN	0.17	Aug 18	0.43	Sep 26	^b 0.00	
ANNUAL SEVEN-DAY MINIMUM	0.27	Aug 13	0.49	Sep 22	Aug 23, 1991	
MAXIMUM PEAK FLOW			104	Jul 6	7,280	
MAXIMUM PEAK STAGE			4.16	Jul 6	13.93	
ANNUAL RUNOFF (AC-FT)	4,150		4,190		42,100	
10 PERCENT EXCEEDS	16		17		119	
50 PERCENT EXCEEDS	1.5		1.4		4.2	
90 PERCENT EXCEEDS	0.61		0.62		0.60	

a Median of annual mean discharges, 33 ft³/s.

b Also Aug. 24 to Sept. 10, Sept. 15-18, 1991, and Sept. 26-30, 1992.

c Estimated.



06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE

LOCATION.--Lat 42° 50'05", long 98° 08'20", in NW¹/₄ SW¹/₄ NW¹/₄ sec.35, T.93 N., R.62 W., Bon Homme County, Hydrologic Unit 10170101, 1.7 mi upstream from mouth of Coffee Creek and 3.1 mi northeast of Verdel, NE.

PERIOD OF RECORD.--February 1990 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specific conductance, wat unf uS/cm 25 deg C (00095)	pH, water, unfltrd field, std units (00400)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Hardness, water, unfltrd mg/L as CaCO ₃ (00900)	Noncarbohardness, wat flt field, mg/L as CaCO ₃ (00904)	Alkalinity, wat flt inc tit field, mg/L as CaCO ₃ (39086)	ANC, wat unfixed end pt, lab, mg/L as CaCO ₃ (90410)
NOV 06...	1150	E29600	756	8.5	10.0	9.1	734	11.0	100	240	72	171	E167
MAR 18...	1250	24,000	789	8.3	17.0	4.5	723	12.9	105	250	78	175	184
APR 23...	1220	E28500	780	8.2	14.0	7.0	726	13.1	114	250	73	173	182
JUN 11...	1210	E24500	752	8.3	21.2	16.4	726	10.0	108	230	67	164	173
JUL 23...	1200	E28500	778	8.1	24.5	21.8	732	7.9	94	240	65	171	176
SEP 24...	1230	E27300	738	8.5	17.0	19.6	736	8.8	100	230	68	164	164

Date	Chlorophyll a phytoplankton, ug/L (70953)	Phaeophytin a, phytoplankton, ug/L (62360)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium, percent (00932)	Sodium adsorption ratio (00931)	Potassium, water, fltrd, mg/L (00935)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)
NOV 06...	--	--	57.6	24.1	80.7	41	2	4.65	192	8	209	10.0	0.5
MAR 18...	--	--	60.8	24.6	73.8	38	2	5.24	213	--	209	10.9	0.6
APR 23...	1.7	0.3	59.0	24.1	75.1	39	2	5.33	211	--	208	10.6	0.6
JUN 11...	1.2	0.4	56.7	21.9	74.3	40	2	4.66	201	--	201	10.7	0.6
JUL 23...	2.0	2.0	57.2	22.5	78.4	41	2	5.09	208	--	205	11.2	0.6
SEP 24...	1.4	0.3	54.0	23.5	71.0	39	2	5.17	187	6	200	11.5	0.6

Date	Silica, water, fltrd, mg/L (00955)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue on evap. at 180 deg C wat flt mg/L (70300)	Residue water, fltrd, tons/d (70302)	Ammonia water, fltrd, mg/L as N (00608)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, ug/L (01106)
NOV 06...	5.9	495	511	--	<0.04	0.22	0.18	<0.008	<0.06	<0.04	<0.04	<0.02	<2
MAR 18...	5.6	496	518	33,600	<0.04	0.35	0.22	<0.008	E.03	E.02	E.02	<0.02	<2
APR 23...	5.5	491	509	--	E.009	0.22	0.19	<0.008	<0.06	0.005	E.003	<0.007	<2
JUN 11...	4.7	474	488	--	E.014	0.32	0.17	<0.008	<0.06	0.013	E.003	<0.007	E1
JUL 23...	5.4	488	502	--	<0.015	0.18	0.22	<0.008	<0.06	0.033	0.019	0.012	E1
SEP 24...	5.5	470	490	--	<0.015	0.21	0.21	<0.008	<0.06	0.018	E.004	<0.007	E1

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

[illegible]

06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ethal- flur- alin, water, fltrd 0.7u GF ug/L (82663)	Etho- prop. water, fltrd 0.7u GF ug/L (82672)	Fipro- nil, water, fltrd, ug/L (62166)	Fipro- nil sulfide water, fltrd, ug/L (62167)	Fipro- nil sulfone water, fltrd, ug/L (62168)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala- thion, water, fltrd, ug/L (39532)	Metola- chlor, water, fltrd, ug/L (39415)	Metri- buzin, water, fltrd, ug/L (82630)	Moli- nate, water, fltrd 0.7u GF ug/L (82671)	Para- thion, water, fltrd, ug/L (39542)
NOV 06...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR 18...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR 23...	<0.009	<0.005	<0.007	<0.005	<0.005	<0.003	<0.004	<0.035	<0.027	E.004	<0.006	<0.002	<0.010
JUN 11...	<0.009	<0.005	<0.007	<0.005	<0.005	<0.003	<0.004	<0.035	<0.027	E.006	<0.006	<0.002	<0.010
JUL 23...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
Date	Methyl para- thion, water, fltrd 0.7u GF ug/L (82667)	Naprop- amide, water, fltrd 0.7u GF ug/L (82684)	Peb- ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi- meth- alin, water, fltrd 0.7u GF ug/L (82683)	cis- Per- methrin water fltrd 0.7u GF ug/L (82687)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome- ton, water, fltrd, ug/L (04037)	Pron- amide, water, fltrd 0.7u GF ug/L (82676)	Propa- chlor, water, fltrd, ug/L (04024)	Pro- panil, water, fltrd 0.7u GF ug/L (82679)	Propar- gite, water, fltrd 0.7u GF ug/L (82685)	Sima- zine, water, fltrd, ug/L (04035)	Tebu- thiuron water fltrd 0.7u GF ug/L (82670)
NOV 06...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR 18...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR 23...	<0.006	<0.007	<0.004	<0.022	<0.006	<0.011	M	<0.004	<0.010	<0.011	<0.02	<0.005	<0.02
JUN 11...	<0.006	<0.007	<0.004	<0.022	<0.006	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	<0.005	<0.02
JUL 23...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
Date	Terba- cil, water, fltrd 0.7u GF ug/L (82665)	Terbu- fos, water, fltrd 0.7u GF ug/L (82675)	Thio- bencarb water fltrd 0.7u GF ug/L (82681)	Tri- allate, water, fltrd 0.7u GF ug/L (82678)	Tri- flur- alin, water, fltrd 0.7u GF ug/L (82661)	Sus- pended sedi- ment concen- tration mg/L (80154)	Suspnd. sedi- ment, sieve diametr percent <.063mm (70331)						
NOV 06...	--	--	--	--	--	7	63						
MAR 18...	--	--	--	--	--	4	96						
APR 23...	<0.034	<0.02	<0.005	<0.002	<0.009	3	84						
JUN 11...	<0.034	<0.02	<0.005	<0.002	<0.009	12	89						
JUL 23...	--	--	--	--	--	8	98						
SEP 24...	--	--	--	--	--	11	75						

06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Potas- sium, water, fltrd, mg/L (00935)	Sulfate water, fltrd, mg/L (00945)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)
APR 23...	1215	0.02	<0.008	<0.09	<0.01	0.02	0.02	<0.01	<0.13	<0.015	<0.002	<0.022	<0.007
Date		Arsenic water, fltrd, ug/L (01000)	Boron, water, fltrd, ug/L (01020)	Iron, water, fltrd, ug/L (01046)	Lithium water, fltrd, ug/L (01130)	Selen- ium, water, fltrd, ug/L (01145)	Stront- ium, water, fltrd, ug/L (01080)	Vanad- ium, water, fltrd, ug/L (01085)					
APR 23...		<0.3	<7	<10	<0.5	<0.5	<0.20	<0.1					

< Less than.

a Field blank sample collected for quality-control purposes.

E Estimated value.

M Presence verified, not quantified.

06464100 KEYA PAHA RIVER NEAR KEYAPAHA, SD

LOCATION.--Lat 43°07'45", long 100°06'24", in NW¹/₄ SW¹/₄ SW¹/₄ sec.17, T.96 N., R.78 W., Tripp County, Hydrologic Unit 10150006, on left bank at downstream side of highway bridge, 2.0 mi northeast of Keyapaha, and 2.0 mi upstream from Sand Creek.

DRAINAGE AREA.--466 mi², approximately.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,230 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1952 reached a stage of about 14 ft, at present datum, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	e20	e29	e16	e13	e25	39	42	17	32	8.5	8.7
2	13	e26	e28	e15	e14	e24	35	50	17	26	8.3	8.3
3	14	e23	e24	e16	e15	e23	e34	52	18	22	8.2	7.2
4	14	e21	e22	e17	e15	e21	e33	64	17	20	9.3	7.0
5	15	e22	e20	e16	e15	e20	e32	97	21	19	9.9	7.0
6	14	21	e21	e16	e14	e22	e32	90	22	20	9.9	6.7
7	15	20	e22	e17	e13	e23	e31	72	21	18	9.4	6.9
8	14	19	e21	e18	e12	e22	e31	68	20	20	9.0	6.7
9	14	19	e21	e16	e12	e20	e31	96	20	21	10	6.6
10	14	19	e22	e15	e11	e25	e35	115	19	20	11	7.6
11	14	20	e23	e13	e11	e40	e40	100	20	16	9.7	8.1
12	14	22	e23	e12	e11	e50	e45	87	18	15	9.4	8.6
13	14	21	e23	e13	e12	e60	e50	72	17	13	9.2	8.9
14	14	20	e23	e13	e13	e80	e46	59	17	12	8.5	9.0
15	14	21	e24	e12	e12	87	38	50	17	11	7.5	9.1
16	14	20	e25	e11	e12	81	36	42	20	11	7.3	9.3
17	14	20	e23	e11	e15	74	34	35	20	10	6.9	9.2
18	15	20	e24	e11	e20	71	33	33	19	11	6.8	10
19	14	20	e25	e11	e30	79	35	29	17	12	6.7	10
20	15	20	e26	e11	e50	101	38	26	16	14	7.3	10
21	15	21	e22	e10	e55	111	40	24	16	12	6.6	10
22	15	21	e20	e10	e50	103	39	23	19	11	6.8	10
23	16	22	e19	e10	e40	94	38	24	23	11	6.7	10
24	16	22	e18	e10	e35	80	43	26	36	10	6.4	9.9
25	17	e14	e17	e10	e30	67	47	25	66	9.2	6.9	9.7
26	16	e15	e16	e10	e28	58	47	24	61	8.7	6.7	10
27	17	e22	e16	e11	e26	53	43	23	51	8.7	6.6	9.9
28	17	e28	e17	e11	e25	48	39	22	47	8.8	6.6	10
29	18	e33	e18	e11	---	45	36	20	45	8.9	6.7	10
30	e19	e26	e18	e11	---	42	35	18	38	9.6	8.0	11
31	e17	---	e17	e12	---	40	---	18	---	8.9	8.7	---
TOTAL	465	638	667	396	609	1,689	1,135	1,526	775	449.8	249.5	265.4
MEAN	15.0	21.3	21.5	12.8	21.8	54.5	37.8	49.2	25.8	14.5	8.05	8.85
MAX	19	33	29	18	55	111	50	115	66	32	11	11
MIN	13	14	16	10	11	20	31	18	16	8.7	6.4	6.6
AC-FT	922	1,270	1,320	785	1,210	3,350	2,250	3,030	1,540	892	495	526

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2003, BY WATER YEAR (WY)

	MEAN	24.6	30.1	25.6	22.2	56.5	84.8	81.1	89.7	61.7	36.4	22.4	19.0
MAX		54.8	81.3	56.1	67.0	247	158	206	257	148	130	87.1	44.0
(WY)	(1996)	(1999)	(2002)	(1997)	(1997)	(2001)	(2001)	(1995)	(1995)	(1995)	(2000)	(1998)	(1999)
MIN		10.6	11.9	5.54	3.51	10.7	29.5	24.3	17.5	11.3	11.4	8.05	8.85
(WY)	(1990)	(1986)	(1986)	(1991)	(1989)	(1995)	(1990)	(1992)	(1985)	(2002)	(2003)	(2003)	(2003)

06464100 KEYA PAHA RIVER NEAR KEYAPAHA, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1982 - 2003	
ANNUAL TOTAL	13,211.2		8,864.7		^a 46.1	
ANNUAL MEAN	36.2		24.3		81.0	
HIGHEST ANNUAL MEAN					18.5	
LOWEST ANNUAL MEAN					928	
HIGHEST DAILY MEAN	597	Mar 30	115	May 10	928	Feb 20, 1997
LOWEST DAILY MEAN	9.4	Jul 29	6.4	Aug 24	2.4	Jan 6, 1991
ANNUAL SEVEN-DAY MINIMUM	9.9	Sep 2	6.7	Aug 23	2.5	Jan 1, 1991
MAXIMUM PEAK FLOW			^b 122	May 10	^c 1,200	May 11, 1999
MAXIMUM PEAK STAGE			^d 5.45	Feb 21	^f 11.29	Feb 18, 1997
ANNUAL RUNOFF (AC-FT)	26,200		17,580		33,380	
10 PERCENT EXCEEDS	64		50		92	
50 PERCENT EXCEEDS	22		18		28	
90 PERCENT EXCEEDS	11		8.9		12	

a Median of annual mean discharges, 45 ft³/s.

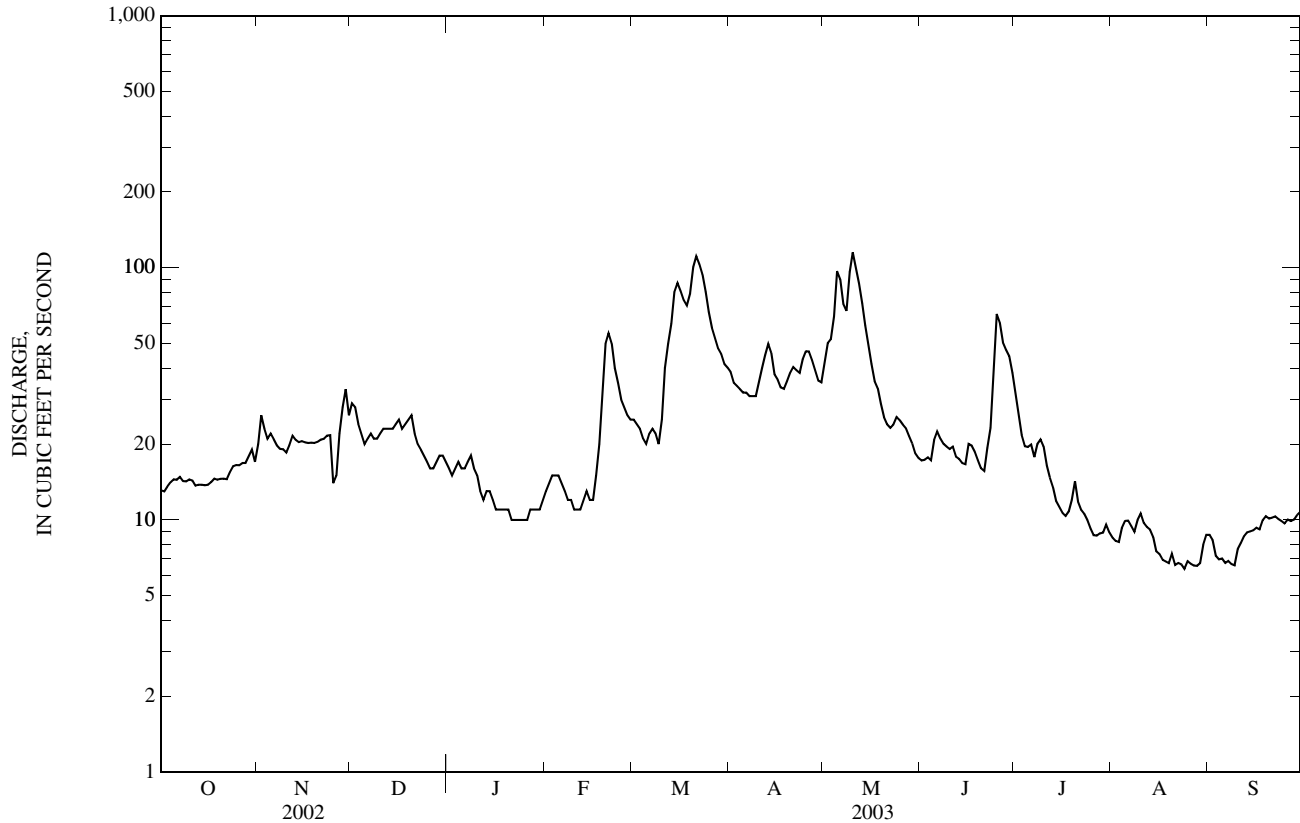
b Gage height, 5.03 ft.

c Gage height, 9.48 ft.

d Backwater from ice, also Mar. 14 backwater from ice.

e Estimated.

f Backwater from ice.



06464500 KEYA PAHA RIVER AT WEWELA, SD

LOCATION.--Lat 43°01'44", long 99°46'49", in NW¹/₄ SW¹/₄ SE¹/₄ sec.24, T.95 N., R.76 W., Tripp County, Hydrologic Unit 10150006, on right bank at downstream side of bridge on U.S. Highway 183, 1.0 mi north of Wewela, 4.5 mi upstream from Holt Creek, and 11.5 mi downstream from Lost Creek.

DRAINAGE AREA.--1,070 mi², approximately.

PERIOD OF RECORD.--November 1937 to September 1940, October 1947 to current year. Monthly discharge only for October 1947, published in WSP 1309.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,049.78 ft above NGVD of 1929. Prior to June 21, 1957, nonrecording gage at site 13 ft upstream at same datum. Prior to Aug. 23, 1984, recording gage on left bank 13 ft downstream from bridge at same 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	e50	e43	e48	e50	e52	68	99	50	92	14	11
2	26	e45	e40	e47	e52	e51	66	114	49	77	14	12
3	27	e53	e39	e46	e55	e50	64	118	50	65	13	11
4	31	50	e38	e47	e53	e51	e62	151	53	55	13	11
5	30	50	e38	e48	e52	e50	e60	210	51	50	16	10
6	30	50	e39	e48	e50	e49	e60	229	55	48	15	9.8
7	29	47	e39	e49	e49	e50	e66	206	55	46	13	9.5
8	28	47	e40	e49	e48	e52	75	189	51	43	13	8.3
9	28	47	e40	e48	e48	e51	83	276	49	43	13	7.8
10	28	45	e40	e46	e47	e49	100	302	48	42	17	8.3
11	28	43	e41	e43	e47	e52	111	284	47	40	18	7.9
12	27	44	e42	e44	e46	e55	102	240	e45	36	14	8.2
13	25	45	e43	e45	e46	e65	91	201	e42	34	13	9.0
14	26	45	e44	e46	e47	e80	80	167	e42	29	12	9.4
15	26	44	e45	e45	e48	e100	71	141	e41	26	12	10
16	28	44	e46	e44	e47	125	71	123	e42	23	12	12
17	30	45	e47	e45	e48	110	69	108	e41	22	11	13
18	29	44	e46	e46	e52	109	69	97	39	22	10	15
19	30	44	e45	e47	e58	113	73	90	38	23	11	16
20	30	43	e40	e48	e70	123	78	81	35	23	17	16
21	31	44	e38	e47	e85	135	80	75	34	23	15	17
22	32	44	e39	e46	e90	136	78	72	50	21	12	17
23	33	43	e42	e45	e76	127	75	70	69	19	11	16
24	35	e40	e44	e44	e63	113	87	77	118	18	9.4	16
25	36	e36	e45	e44	e54	103	103	76	220	16	9.3	16
26	37	e38	e44	e44	e53	89	105	71	226	16	9.4	17
27	39	e44	e45	e45	e52	84	96	67	194	16	9.0	18
28	40	e50	e46	e46	e52	78	87	62	168	16	8.2	18
29	41	e55	e47	e45	---	72	79	57	135	16	8.5	18
30	43	e48	e48	e46	---	73	81	55	111	17	8.6	18
31	38	---	e49	e47	---	72	---	51	---	16	9.9	---
TOTAL	965	1,367	1,322	1,428	1,538	2,519	2,390	4,159	2,248	1,033	381.3	386.2
MEAN	31.1	45.6	42.6	46.1	54.9	81.3	79.7	134	74.9	33.3	12.3	12.9
MAX	43	55	49	49	90	136	111	302	226	92	18	18
MIN	24	36	38	43	46	49	60	51	34	16	8.2	7.8
AC-FT	1,910	2,710	2,620	2,830	3,050	5,000	4,740	8,250	4,460	2,050	756	766

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1940, 1948 - 2003, BY WATER YEAR (WY)

MEAN	41.2	47.5	39.1	33.8	76.1	176	166	148	108	65.3	36.7	31.2
MAX	141	204	120	135	546	598	605	754	512	607	178	89.2
(WY)	(1996)	(1999)	(2002)	(1997)	(1997)	(1960)	(1952)	(1995)	(1962)	(1962)	(1998)	(1999)
MIN	8.49	12.0	8.74	1.61	5.08	33.5	31.3	27.4	12.2	3.55	0.80	3.71
(WY)	(1977)	(1977)	(1956)	(1949)	(1979)	(1975)	(1976)	(1981)	(1976)	(1940)	(1976)	(1976)

06464500 KEYA PAHA RIVER AT WEWELA, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939-1940, 1948-2003	
ANNUAL TOTAL	22,977		19,736.5		^a 80.6	
ANNUAL MEAN	63.0		54.1		188	
HIGHEST ANNUAL MEAN					19.5	
LOWEST ANNUAL MEAN					4,930	
HIGHEST DAILY MEAN	500	Mar 31	302	May 10	^b 0.00	Mar 30, 1952
LOWEST DAILY MEAN	11	Jul 31	7.8	Sep 9	^b 0.00	Jan 10, 1949
ANNUAL SEVEN-DAY MINIMUM	12	Jul 28	8.4	Sep 8	^d 5,430	Mar 31, 1952
MAXIMUM PEAK FLOW			^c 331	May 9	^f 13.50	Mar 25, 1950
MAXIMUM PEAK STAGE			^f 3.43	Mar 14		
ANNUAL RUNOFF (AC-FT)	45,570		39,150		58,410	
10 PERCENT EXCEEDS	122		102		166	
50 PERCENT EXCEEDS	45		46		43	
90 PERCENT EXCEEDS	17		13		16	

a Median of annual mean discharges, 70 ft³/s.

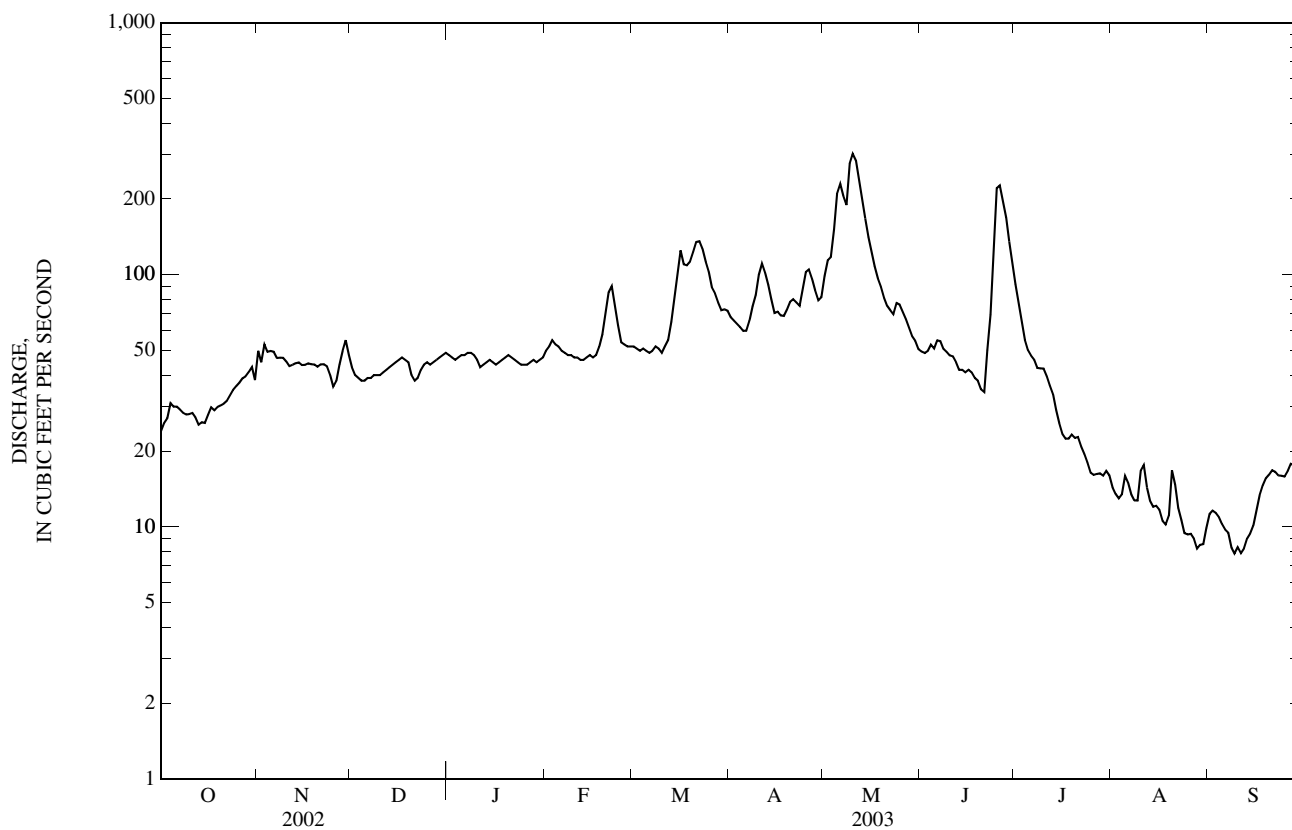
b Also Jan. 11 to Feb. 15, 1949, and Aug. 19 to Sept. 14, 1976.

c Gage height, 3.04 ft.

d Gage height, 13.08 ft.

e Estimated.

f Backwater from ice.



06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD

LOCATION.--Lat 42° 51' 21", long 97° 53' 06", in SW¹/₄ NE¹/₄ SW¹/₄ sec.24, T.93 N., R.60 W., Bon Homme County, Hydrologic Unit 10170101, on left bank at east edge of Springfield at mile 832.20.

PERIOD OF RECORD.--August 1967 to current year.

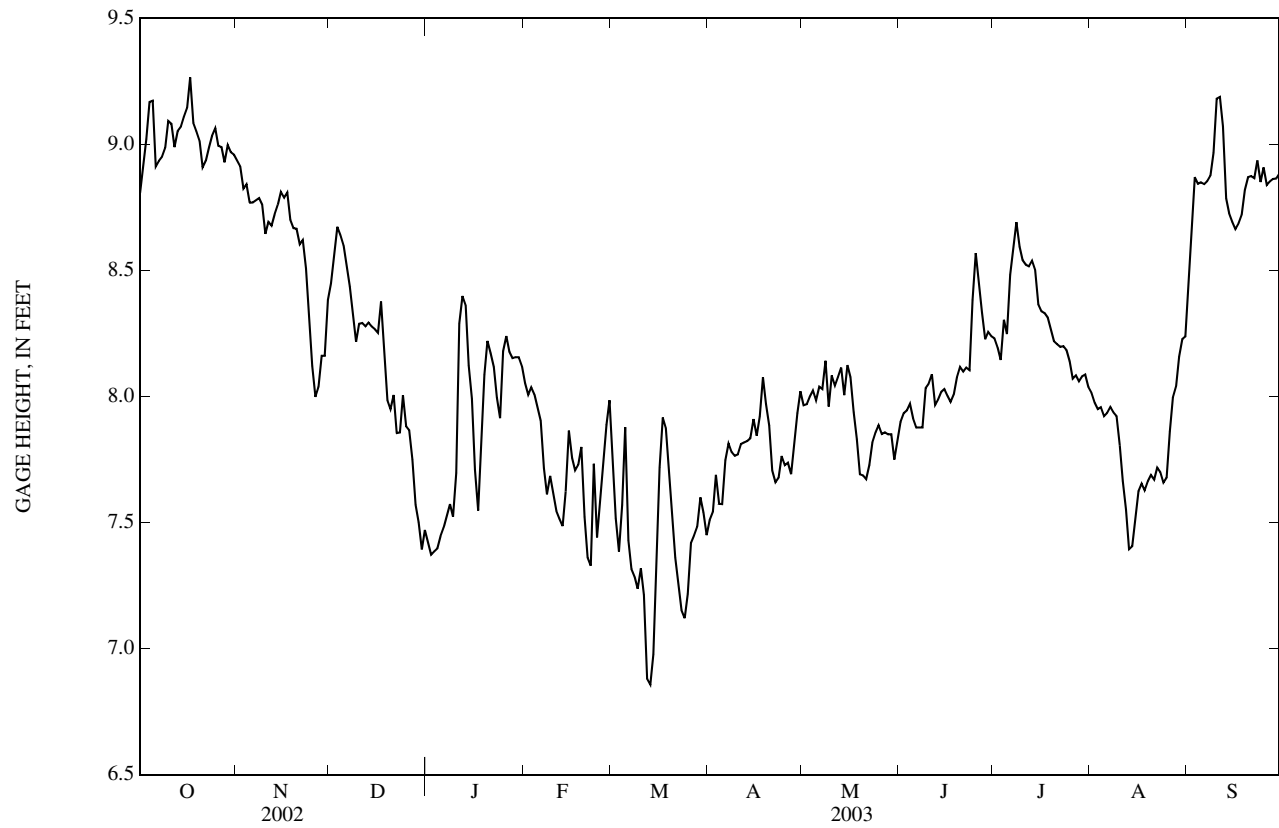
GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above NGVD of 1929.

REMARKS.--Records good. Stage regulated by Gavins Point Dam 21.2 mi downstream. U.S. Army Corps of Engineers satellite data- collection platform at station. Prior to Oct. 1, 1980, gage heights in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.81	8.94	8.45	7.42	8.05	7.72	7.51	7.96	7.90	8.23	8.01	8.46
2	8.92	8.91	8.57	7.37	8.01	7.52	7.54	7.97	7.93	8.19	7.98	8.63
3	9.02	8.83	8.67	7.39	8.04	7.39	7.69	8.00	7.95	8.14	7.95	8.87
4	9.17	8.84	8.64	7.40	8.01	7.57	7.57	8.02	7.97	8.30	7.96	8.84
5	9.17	8.77	8.60	7.45	7.96	7.88	7.57	7.99	7.91	8.25	7.92	8.85
6	8.91	8.77	8.52	7.48	7.90	7.43	7.75	8.04	7.88	8.48	7.93	8.84
7	8.93	8.78	8.44	7.53	7.72	7.32	7.81	8.03	7.88	8.59	7.96	8.85
8	8.95	8.79	8.33	7.57	7.61	7.28	7.78	8.14	7.88	8.69	7.94	8.88
9	8.99	8.76	8.22	7.52	7.68	7.24	7.76	7.96	8.03	8.59	7.92	8.97
10	9.09	8.65	8.29	7.70	7.62	7.32	7.77	8.08	8.05	8.54	7.81	9.18
11	9.08	8.69	8.29	8.29	7.55	7.21	7.81	8.04	8.09	8.52	7.66	9.19
12	8.99	8.68	8.28	8.40	7.52	6.88	7.82	8.08	7.97	8.52	7.55	9.07
13	9.05	8.72	8.29	8.36	7.49	6.86	7.82	8.11	7.99	8.54	7.39	8.79
14	9.07	8.76	8.28	8.12	7.62	6.98	7.83	8.01	8.02	8.50	7.41	8.73
15	9.11	8.81	8.27	7.99	7.86	7.36	7.91	8.12	8.03	8.37	7.50	8.69
16	9.14	8.79	8.25	7.71	7.76	7.72	7.84	8.08	8.00	8.34	7.62	8.66
17	9.27	8.81	8.38	7.55	7.71	7.92	7.92	7.94	7.98	8.33	7.65	8.69
18	9.09	8.70	8.18	7.77	7.73	7.88	8.08	7.83	8.01	8.31	7.63	8.72
19	9.05	8.67	7.99	8.09	7.80	7.71	7.97	7.69	8.07	8.27	7.66	8.82
20	9.01	8.67	7.95	8.22	7.52	7.51	7.88	7.69	8.12	8.22	7.69	8.87
21	8.91	8.60	8.01	8.17	7.36	7.36	7.71	7.67	8.10	8.21	7.67	8.87
22	8.94	8.62	7.85	8.12	7.33	7.25	7.66	7.73	8.11	8.20	7.72	8.87
23	8.99	8.51	7.86	8.00	7.73	7.15	7.68	7.82	8.10	8.20	7.70	8.94
24	9.03	8.29	8.01	7.91	7.44	7.12	7.76	7.86	8.38	8.18	7.66	8.85
25	9.06	8.12	7.88	8.18	7.60	7.22	7.73	7.89	8.57	8.14	7.68	8.91
26	8.99	8.00	7.87	8.24	7.75	7.42	7.74	7.85	8.46	8.07	7.86	8.84
27	8.99	8.04	7.75	8.18	7.89	7.45	7.69	7.86	8.33	8.08	8.00	8.85
28	8.93	8.16	7.57	8.15	7.99	7.48	7.81	7.85	8.23	8.06	8.04	8.86
29	9.00	8.16	7.50	8.16	---	7.60	7.93	7.85	8.26	8.08	8.16	8.86
30	8.97	8.38	7.39	8.16	---	7.54	8.02	7.75	8.24	8.09	8.23	8.88
31	8.96	---	7.47	8.12	---	7.45	---	7.83	---	8.04	8.24	---
MEAN	9.02	8.61	8.13	7.89	7.72	7.41	7.78	7.93	8.08	8.30	7.81	8.84
MAX	9.27	8.94	8.67	8.40	8.05	7.92	8.08	8.14	8.57	8.69	8.24	9.19
MIN	8.81	8.00	7.39	7.37	7.33	6.86	7.51	7.67	7.88	8.04	7.39	8.46

06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD—Continued



06467000 LEWIS AND CLARK LAKE NEAR YANKTON, SD

LOCATION.--Lat 42°50'56", long 97°28'54", in SW¹/₄ sec.7, T.33 N., R.1 W., Cedar County, NE, Hydrologic Unit 10170101, in powerhouse of Gavins Point Dam on Missouri River, 3.75 mi southwest of Yankton, 13.6 mi upstream from James River, 32.5 mi downstream from Niobrara River, and at mile 811.0.

DRAINAGE AREA.--279,500 mi², approximately.

PERIOD OF RECORD.--July 1955 to current year (monthend contents only). Prior to October 1955, published as Gavins Point Reservoir near Yankton.

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929. Prior to Dec. 9, 1955, recorder at temporary location on wall of intake structure unit 3.

REMARKS.--Reservoir is formed by earthfill dam; storage began in July 1955. Maximum capacity, 504,000 acre-ft below elevation 1,210.0 ft (top of spillway gates). Normal maximum, 442,600 acre-ft below elevation 1,208.0 ft. Inactive storage, 157,000 acre-ft below elevation 1,195.0 ft. Dead storage, 23,000 acre-ft below elevation 1,180.0 ft (crest of spillway). From capacity table put into use Nov. 1, 1986; maximum capacity, 491,700 acre-ft. Normal maximum, 432,000 acre-ft. Inactive storage, 149,400 acre-ft. Dead storage, 17,700 acre-ft. Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of 14 taintor gates, each 40 ft wide by 30 ft high; spillway capacity, 280,000 ft³/s at pool elevation 1,210.0 ft. Crest of spillway is at elevation 1,180.0 ft. Normal releases are through 3 power units, installation completed in January 1957; maximum release through power units is 35,000 ft³/s at pool elevation, 1,210.0 ft. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 565,000 acre-ft, Apr. 1, 1960, affected by wind; maximum elevation, 1,210.6 ft, Mar. 29, 1960; minimum since initial filling, 61,950 acre-ft, Apr. 23, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 416,000 acre-ft, Dec. 4; minimum contents, 339,000 acre-ft, Jan. 24.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,207.08	386,000	--
Oct. 31	1,207.83	405,000	+19,000
Nov. 30	1,208.00	412,000	+7,000
Dec. 31	1,206.97	384,000	-28,000
CAL YR 2002	--	--	-10,000
Jan. 31	1,206.69	376,000	-8,000
Feb. 28	1,206.32	366,000	-10,000
Mar. 31	1,205.85	355,000	-11,000
Apr. 30	1,205.98	357,000	+2,000
May 31	1,205.62	349,000	-8,000
June 30	1,206.59	374,000	+25,000
July 31	1,206.41	368,000	-6,000
Aug. 31	1,206.40	368,000	0
Sept. 30	1,207.35	393,000	+25,000
WTR YR 2003	--	--	+7,000

NOTE.--LAKE FROZEN OVER DEC. 24 TO MAR. 24.

THIS PAGE IS INTENTIONALLY BLANK

MISSOURI-LEWIS AND CLARK RIVER BASIN

06467500 MISSOURI RIVER AT YANKTON, SD
(National stream-quality accounting network station)

LOCATION.--Lat 42° 51'58", long 97° 23'37", in SW¹/₄ SW¹/₄ sec.18, T.93 N., R.55 W., Yankton County, Hydrologic Unit 10170101, on left bank 10 ft upstream of Meridian Highway Bridge on U.S. Highway 81, 5.2 mi downstream from Gavins Point Dam, 6.0 mi upstream from James River, and at mile 805.8.

DRAINAGE AREA.--279,500 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1, 1995, to current year (daily gage-height records). October 1930 to September 1995 and October 2000 to current year (daily discharge). Monthly discharge only for some periods, published in WSP 1309. Gage-height records collected at same site March 1873 to November 1886, March 1905 to May 1908 (fragmentary), August 1921 to September 1950 (except winter months prior to 1932), are contained in reports of the National Weather Service.

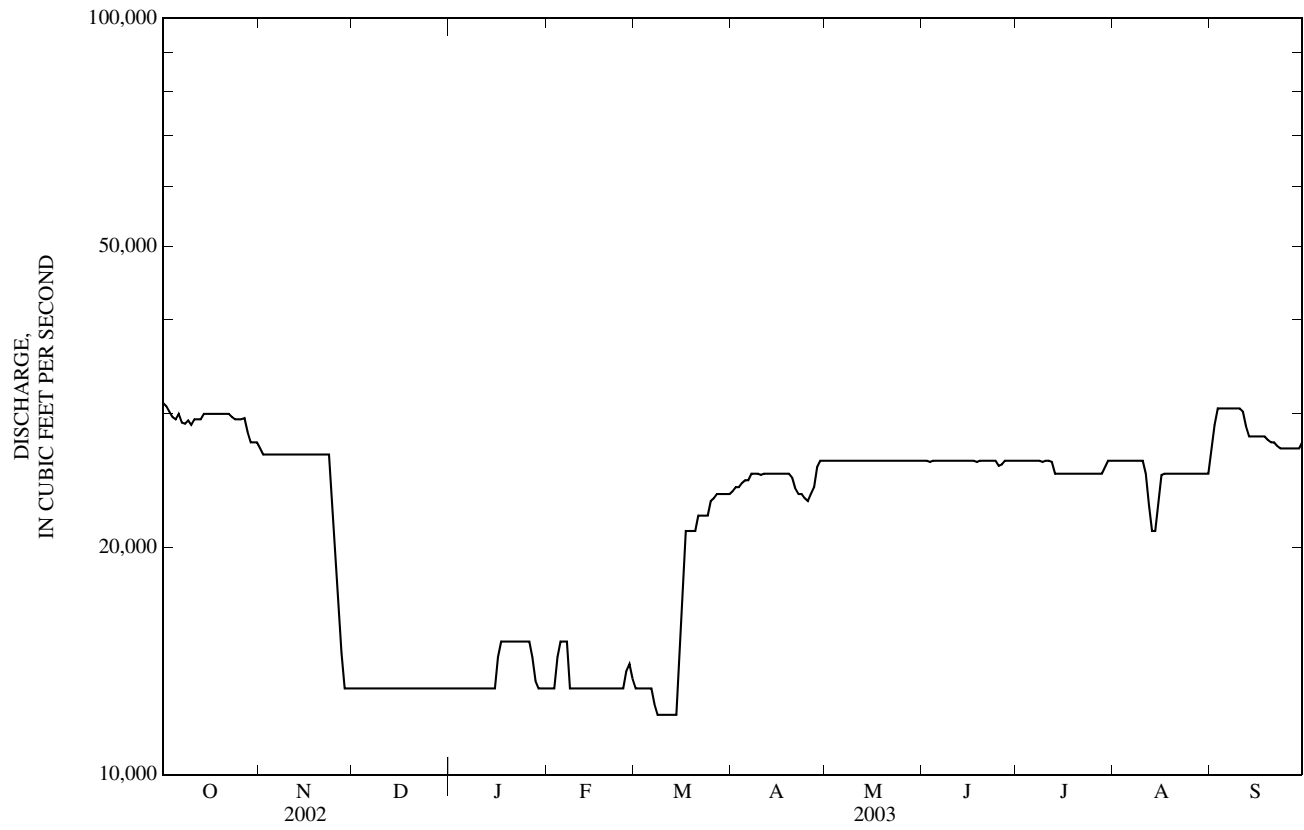
GAGE.--Water-stage recorder. Datum of gage is 1,139.68 ft above NGVD of 1929. Prior to Sept. 20, 1932, nonrecording gage, and Sept. 20, 1932, to Mar. 9, 1967, water-stage recorder at present site and at datum 20.0 ft higher.

REMARKS.--Records good. Flow on Missouri River main stem completely regulated by a series of 6 dams with the most downstream being Gavins Point Dam (5.2 mi upstream from gage). Many diversions for irrigation and water supply above station. U.S. Army Corps of Engineers satellite data-collection platform at station.

COOPERATION.--Daily discharges were provided by U.S. Army Corps of Engineers from October 2000 to current year.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

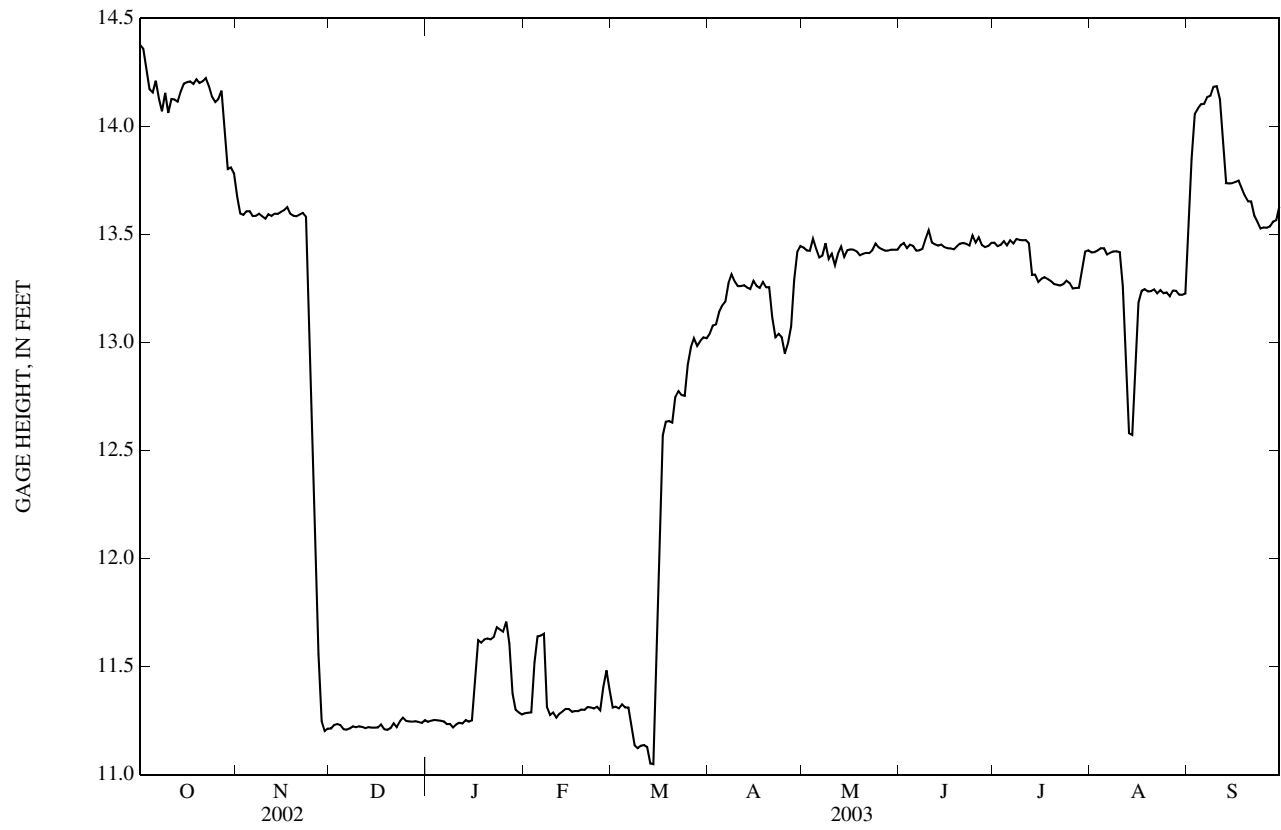
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31,000	27,000	13,000	13,000	13,000	13,000	23,700	26,000	26,000	26,000	26,000	27,000
2	30,700	26,500	13,000	13,000	13,000	13,000	24,000	26,000	26,000	26,000	26,000	29,000
3	30,200	26,500	13,000	13,000	13,000	13,000	24,000	26,000	25,900	26,000	26,000	30,500
4	29,700	26,500	13,000	13,000	14,300	13,000	24,300	26,000	26,000	26,000	26,000	30,500
5	29,500	26,500	13,000	13,000	15,000	13,000	24,500	26,000	26,000	26,000	26,000	30,500
6	30,000	26,500	13,000	13,000	15,000	13,000	24,500	26,000	26,000	26,000	26,000	30,500
7	29,200	26,500	13,000	13,000	15,000	12,400	25,000	26,000	26,000	26,000	26,000	30,500
8	29,100	26,500	13,000	13,000	13,000	12,000	25,000	26,000	26,000	26,000	26,000	30,500
9	29,400	26,500	13,000	13,000	13,000	12,000	25,000	26,000	26,000	25,900	26,000	30,500
10	29,000	26,500	13,000	13,000	13,000	12,000	24,900	26,000	26,000	26,000	26,000	30,500
11	29,500	26,500	13,000	13,000	13,000	12,000	25,000	26,000	26,000	26,000	25,000	30,200
12	29,500	26,500	13,000	13,000	13,000	12,000	25,000	26,000	26,000	25,900	22,700	28,900
13	29,500	26,500	13,000	13,000	13,000	12,000	25,000	26,000	26,000	25,000	21,000	28,000
14	30,000	26,500	13,000	13,000	13,000	12,000	25,000	26,000	26,000	25,000	21,000	28,000
15	30,000	26,500	13,000	13,000	13,000	15,000	25,000	26,000	26,000	25,000	22,900	28,000
16	30,000	26,500	13,000	14,300	13,000	18,000	25,000	26,000	26,000	25,000	24,900	28,000
17	30,000	26,500	13,000	15,000	13,000	21,000	25,000	26,000	26,000	25,000	25,000	28,000
18	30,000	26,500	13,000	15,000	13,000	21,000	25,000	26,000	25,900	25,000	25,000	28,000
19	30,000	26,500	13,000	15,000	13,000	21,000	25,000	26,000	26,000	25,000	25,000	27,700
20	30,000	26,500	13,000	15,000	13,000	21,000	24,700	26,000	26,000	25,000	25,000	27,500
21	30,000	26,500	13,000	15,000	13,000	22,000	23,900	26,000	26,000	25,000	25,000	27,500
22	30,000	26,500	13,000	15,000	13,000	22,000	23,500	26,000	26,000	25,000	25,000	27,200
23	29,700	26,500	13,000	15,000	13,000	22,000	23,500	26,000	26,000	25,000	25,000	27,000
24	29,500	23,500	13,000	15,000	13,000	22,000	23,200	26,000	26,000	25,000	25,000	27,000
25	29,500	20,500	13,000	15,000	13,000	23,000	23,000	26,000	25,600	25,000	25,000	27,000
26	29,500	17,500	13,000	15,000	13,700	23,200	23,500	26,000	25,700	25,000	25,000	27,000
27	29,600	14,500	13,000	14,300	14,000	23,500	24,000	26,000	26,000	25,000	25,000	27,000
28	28,400	13,000	13,000	13,300	13,400	23,500	25,500	26,000	26,000	25,000	25,000	27,000
29	27,500	13,000	13,000	13,000	---	23,500	26,000	26,000	26,000	25,500	25,000	27,000
30	27,500	13,000	13,000	13,000	---	23,500	26,000	26,000	26,000	26,000	25,000	27,500
31	27,500	---	13,000	13,000	---	23,500	---	26,000	---	26,000	25,000	---
TOTAL	915,000	725,000	403,000	425,900	373,400	543,100	736,700	806,000	779,100	789,300	772,500	853,500
MEAN	29,520	24,170	13,000	13,740	13,340	17,520	24,560	26,000	25,970	25,460	24,920	28,450
MAX	31,000	27,000	13,000	15,000	15,000	23,500	26,000	26,000	26,000	26,000	26,000	30,500
MIN	27,500	13,000	13,000	13,000	13,000	12,000	23,000	26,000	25,600	25,000	21,000	27,000
AC-FT	1,815,000	1,438,000	799,400	844,800	740,600	1,077,000	1,461,000	1,599,000	1,545,000	1,566,000	1,532,000	1,693,000



MISSOURI-LEWIS AND CLARK RIVER BASIN
06467500 MISSOURI RIVER AT YANKTON, SD—Continued

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.38	13.67	11.21	11.24	11.28	11.31	13.04	13.44	13.45	13.46	13.42	13.53
2	14.36	13.60	11.23	11.25	11.29	11.31	13.08	13.43	13.46	13.45	13.42	13.85
3	14.27	13.59	11.23	11.25	11.29	11.31	13.08	13.42	13.44	13.45	13.43	14.06
4	14.17	13.61	11.23	11.25	11.52	11.33	13.14	13.48	13.45	13.47	13.44	14.08
5	14.16	13.61	11.21	11.25	11.64	11.31	13.17	13.44	13.45	13.45	13.44	14.10
6	14.21	13.58	11.21	11.25	11.64	11.31	13.19	13.39	13.42	13.47	13.41	14.10
7	14.13	13.59	11.21	11.23	11.65	11.22	13.28	13.40	13.43	13.46	13.42	14.14
8	14.07	13.60	11.22	11.23	11.31	11.14	13.32	13.46	13.43	13.48	13.42	14.14
9	14.15	13.58	11.22	11.22	11.28	11.12	13.28	13.39	13.48	13.47	13.42	14.18
10	14.06	13.57	11.22	11.23	11.29	11.13	13.26	13.41	13.52	13.47	13.42	14.19
11	14.13	13.59	11.22	11.24	11.26	11.14	13.26	13.36	13.46	13.47	13.26	14.13
12	14.12	13.59	11.21	11.24	11.28	11.13	13.27	13.41	13.45	13.46	12.92	13.92
13	14.11	13.60	11.22	11.25	11.29	11.05	13.25	13.44	13.45	13.31	12.58	13.74
14	14.16	13.60	11.22	11.24	11.30	11.05	13.25	13.40	13.45	13.31	12.57	13.74
15	14.20	13.60	11.22	11.25	11.30	11.52	13.28	13.43	13.44	13.28	12.85	13.74
16	14.20	13.61	11.22	11.43	11.29	12.04	13.26	13.43	13.44	13.29	13.18	13.74
17	14.21	13.63	11.23	11.62	11.29	12.57	13.25	13.43	13.44	13.30	13.24	13.75
18	14.20	13.60	11.21	11.61	11.29	12.63	13.28	13.42	13.43	13.29	13.25	13.71
19	14.22	13.59	11.21	11.63	11.30	12.64	13.26	13.40	13.44	13.28	13.24	13.68
20	14.20	13.58	11.21	11.63	11.30	12.63	13.26	13.41	13.46	13.27	13.24	13.65
21	14.21	13.59	11.24	11.63	11.31	12.75	13.12	13.41	13.46	13.27	13.25	13.65
22	14.22	13.60	11.22	11.64	11.31	12.77	13.02	13.41	13.46	13.26	13.23	13.59
23	14.19	13.58	11.25	11.68	11.31	12.76	13.04	13.43	13.45	13.27	13.24	13.56
24	14.14	13.16	11.26	11.67	11.31	12.75	13.03	13.46	13.49	13.29	13.23	13.53
25	14.11	12.66	11.25	11.66	11.30	12.90	12.95	13.44	13.46	13.27	13.23	13.53
26	14.13	12.13	11.25	11.71	11.40	12.98	12.99	13.43	13.49	13.25	13.21	13.53
27	14.17	11.56	11.25	11.61	11.48	13.02	13.07	13.42	13.45	13.25	13.24	13.54
28	13.98	11.25	11.25	11.37	11.39	12.98	13.29	13.43	13.44	13.25	13.24	13.56
29	13.80	11.20	11.24	11.30	---	13.01	13.42	13.43	13.45	13.34	13.22	13.57
30	13.81	11.21	11.24	11.29	---	13.02	13.45	13.43	13.46	13.42	13.22	13.63
31	13.78	---	11.25	11.28	---	13.02	---	13.43	---	13.43	13.23	---
MEAN	14.14	13.20	11.23	11.40	11.35	12.03	13.19	13.42	13.45	13.36	13.23	13.80
MAX	14.38	13.67	11.26	11.71	11.65	13.02	13.45	13.48	13.52	13.48	13.44	14.19
MIN	13.78	11.20	11.21	11.22	11.26	11.05	12.95	13.36	13.42	13.25	12.57	13.53



06467500 MISSOURI RIVER AT YANKTON, SD—Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 2000 to current year (NASQAN). December 1950 to September 1951, October 1956 to September 1960, and July 1969 to September 1974 chemical analyses performed.

WATER TEMPERATURE: October 1956 to September 1960.

REMARKS.--Water-quality samples are collected about 1.2 mi below Gavins Point Dam, or 3.9 mi upstream from the gage on the main channel. Inflow between the location where water-quality samples are collected and the stage-gaging station generally is negligible. For all samples collected during water year 2003, field duplicate samples were collected for suspended-sediment analyses for quality-control purposes. On June 12, 2003, in addition to the primary sample (time 1120), a field duplicate sample (time 1130) for analysis of inorganic and organic constituents was collected for quality-control purposes. Also, on June 12, 2003 (time 1125), a centroid near-surface grab sample was collected for quality-control purposes. The analytical results for all duplicate samples are noted in the water-quality results. On Apr. 4, 2003, a duplicate sample also was collected and spiked with various known concentrations of pesticides; results of the spiked samples are available from the South Dakota District office in Rapid City, S. Dak. On Jan. 7 and Aug. 19, 2003, blank water was processed at the field site through the sampling equipment used for this site and then processed and analyzed for quality-control purposes. The analytical results for the field blank samples are presented in a table following the water-quality results. Additional quality-control data for this site are available from the South Dakota District office in Rapid City, S. Dak.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

[illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Alkalinity, wat flt fxd end lab, mg/L as CaCO3 (29801)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium, percent (00932)	Sodium adsorption ratio (00931)	Potassium, water, fltrd, mg/L (00935)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)
NOV 07... a07...	172 --	53.3 --	22.1 --	71.6 --	40 --	2 --	4.84 --	187 --	6 --	199 --	10.0 --	0.5 --
JAN 07... a07...	176 --	55.5 --	22.2 --	67.0 --	38 --	2 --	4.70 --	208 --	-- --	188 --	8.97 --	0.59 --
FEB 26... a26...	E210 --	54.2 --	20.9 --	64.0 --	38 --	2 --	4.45 --	203 --	-- --	179 --	8.25 --	0.54 --
APR 24... a24...	175 --	56.3 --	21.8 --	66.7 --	38 --	2 --	5.38 --	208 --	-- --	188 --	8.86 --	0.52 --
JUN 12... c12... a12... b12...	169 -- -- 169	55.7 -- -- 54.9	21.4 -- -- 21.6	69.0 -- -- 68.1	39 -- -- 39	2 -- -- 2	5.30 -- -- 5.20	192 -- -- --	2 -- -- --	188 -- -- 187	10.2 -- -- 10.2	0.6 -- -- 0.6
JUL 24... a24...	172 --	57.1 --	21.6 --	75.2 --	41 --	2 --	5.19 --	195 --	-- --	199 --	10.9 --	0.6 --
AUG 19... a19...	165 --	55.9 --	22.5 --	69.9 --	39 --	2 --	5.27 --	201 --	-- --	203 --	11.1 --	0.6 --
SEP 25... a25...	165 --	50.8 --	21.8 --	65.4 --	39 --	2 --	4.96 --	187 --	8 --	196 --	11.3 --	0.6 --

Date	Silica, water, fltrd, mg/L (00955)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue on evap. at 180 deg C wat flt mg/L (70300)	Residue water, fltrd, tons/d (70302)	Ammonia water, fltrd, mg/L as N (00608)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Phos- phorus, water, unfltrd mg/L (00665)	Phos- phorus, water, fltrd, mg/L (00666)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)
NOV 07... a07...	7.59 --	469 --	483 --	34,600 --	<0.015 --	0.26 --	0.14 --	E.002 --	0.077 --	0.014 --	E.004 --	<0.007 --
JAN 07... a07...	9.03 --	460 --	478 --	17,200 --	E.008 --	0.20 --	0.15 --	E.002 --	0.169 --	0.014 --	E.004 --	<0.007 --
FEB 26... a26...	10.3 --	443 --	462 --	17,500 --	<0.015 --	0.28 --	0.21 --	E.002 --	0.192 --	0.026 --	0.009 --	E.004 --
APR 24... a24...	8.50 --	459 --	484 --	30,000 --	<0.015 --	0.33 --	0.26 --	E.002 --	0.076 --	0.016 --	E.003 --	<0.007 --
JUN 12... c12... a12... b12...	7.12 -- -- 7.16	455 -- -- 457	480 -- -- 471	33,700 -- -- --	<0.015 -- -- <0.015	0.30 -- -- 0.30	0.23 -- -- 0.22	<0.002 -- -- <0.002	<0.022 -- -- <0.022	0.020 -- -- 0.022	E.004 -- -- E.004	<0.007 -- -- <0.007
JUL 24... a24...	7.93 --	474 --	493 --	33,300 --	0.040 --	0.35 --	0.26 --	E.002 --	<0.022 --	0.033 --	0.008 --	<0.007 --
AUG 19... a19...	7.50 --	476 --	494 --	33,400 --	<0.015 --	0.33 --	0.18 --	<0.002 --	<0.022 --	0.027 --	0.005 --	<0.007 --
SEP 25... a25...	6.73 --	458 --	483 --	-- --	E.012 --	0.30 --	0.20 --	<0.002 --	<0.022 --	0.024 --	0.005 --	<0.007 --

MISSOURI-FORT RANDALL RIVER BASIN

06467500 MISSOURI RIVER AT YANKTON, SD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Arsenic water, fltrd, ug/L (01000)	Boron, water, fltrd, ug/L (01020)	Iron, water, fltrd, ug/L (01046)	Lithium water, fltrd, ug/L (01130)	Selen- ium, water, fltrd, ug/L (01145)	Stront- ium, water, fltrd, ug/L (01080)	Vanad- ium, water, fltrd, ug/L (01085)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Aceto- chlor, water, fltrd, ug/L (49260)	Ala- chlor, water, fltrd, ug/L (46342)	2,6-Di- ethyl- aniline water fltrd 0.7u GF ug/L (82660)
NOV 07... ^a 07...	2.0 --	143 --	<10 --	51.1 --	1.6 --	510 --	1.6 --	3.3 --	0.4 --	<0.006 --	<0.004 --	<0.006 --
JAN 07... ^a 07...	2.3 --	135 --	<10 --	48.4 --	2.2 --	533 --	3.7 --	3.0 --	0.3 --	<0.006 --	<0.004 --	<0.006 --
FEB 26... ^a 26...	1.9 --	131 --	<10 --	47.5 --	1.3 --	493 --	2.4 --	3.1 --	0.5 --	<0.006 --	<0.004 --	<0.006 --
APR 24... ^a 24...	2.3 --	123 --	<10 --	47.2 --	1.7 --	538 --	4.4 --	3.3 --	0.7 --	0.008 --	<0.004 --	<0.006 --
JUN 12... ^c 12... ^a 12... ^b 12...	2.0 -- -- 2.0	132 -- -- 129	<8 -- -- <8	46.4 -- -- 45.6	1.4 -- -- 1.5	527 -- -- 522	2.4 -- -- 2.4	3.2 -- -- 3.1	0.8 -- -- 0.9	0.051 -- -- --	0.004 -- -- --	<0.006 -- -- --
JUL 24... ^a 24...	2.5 --	127 --	E5 --	47.7 --	1.7 --	554 --	3.0 --	3.4 --	1.0 --	0.013 --	<0.004 --	<0.006 --
AUG 19... ^a 19...	2.4 --	148 --	<8 --	50.0 --	1.6 --	555 --	2.7 --	3.1 --	0.9 --	0.009 --	0.005 --	<0.006 --
SEP 25... ^a 25...	1.0 --	134 --	<8 --	47.6 --	1.4 --	500 --	2.8 --	3.1 --	1.0 --	0.006 --	0.005 --	<0.006 --
Date	Atra- zine, water, fltrd, ug/L (39632)	CIAT, water, fltrd, ug/L (04040)	Azin- phos- methyl, water, fltrd 0.7u GF ug/L (82686)	Ben- flur- alin, water, fltrd 0.7u GF ug/L (82673)	alpha- HCH, water, fltrd, ug/L (34253)	Butyl- ate, water, fltrd, ug/L (04028)	Car- baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo- furan, water, fltrd 0.7u GF ug/L (82674)	Cyana- zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	p,p'- DDE, water, fltrd, ug/L (34653)	Diazi- non, water, fltrd, ug/L (39572)
NOV 07... ^a 07...	0.014 --	E.005 --	<0.050 --	<0.010 --	<0.005 --	<0.002 --	<0.041 --	<0.020 --	<0.018 --	<0.003 --	<0.003 --	<0.005 --
JAN 07... ^a 07...	0.015 --	E.004 --	<0.050 --	<0.010 --	<0.005 --	<0.002 --	<0.041 --	<0.020 --	<0.018 --	<0.003 --	<0.003 --	<0.005 --
FEB 26... ^a 26...	0.015 --	E.007 --	<0.050 --	<0.010 --	<0.005 --	<0.002 --	<0.041 --	<0.020 --	<0.018 --	<0.003 --	<0.003 --	<0.005 --
APR 24... ^a 24...	0.019 --	E.005 --	<0.050 --	<0.010 --	<0.005 --	<0.002 --	<0.041 --	<0.020 --	<0.018 --	<0.003 --	<0.003 --	<0.005 --
JUN 12... ^c 12... ^a 12... ^b 12...	0.061 -- -- --	E.008 -- -- --	<0.050 -- -- --	<0.010 -- -- --	<0.005 -- -- --	<0.002 -- -- --	<0.041 -- -- --	<0.020 -- -- --	<0.018 -- -- --	<0.003 -- -- --	<0.003 -- -- --	<0.005 -- -- --
JUL 24... ^a 24...	0.042 --	E.008 --	<0.050 --	<0.010 --	<0.005 --	<0.002 --	<0.041 --	<0.020 --	<0.018 --	<0.003 --	<0.003 --	<0.005 --
AUG 19... ^a 19...	0.035 --	E.006 --	<0.050 --	<0.010 --	<0.005 --	<0.002 --	<0.041 --	<0.020 --	<0.018 --	<0.003 --	<0.003 --	<0.005 --
SEP 25... ^a 25...	0.030 --	<0.006 --	<0.050 --	<0.010 --	<0.005 --	<0.002 --	<0.041 --	<0.020 --	<0.018 --	<0.003 --	<0.003 --	<0.005 --

06467500 MISSOURI RIVER AT YANKTON, SD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfuralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)
NOV 07... ^a 07...	<0.005 --	<0.02 --	<0.002 --	<0.009 --	<0.005 --	<0.003 --	<0.004 --	<0.035 --	<0.027 --	E.004 --	<0.006 --	<0.002 --
JAN 07... ^a 07...	<0.005 --	<0.02 --	<0.002 --	<0.009 --	<0.005 --	<0.003 --	<0.004 --	<0.035 --	<0.027 --	E.006 --	<0.006 --	<0.002 --
FEB 26... ^a 26...	<0.005 --	<0.02 --	<0.002 --	<0.009 --	<0.005 --	<0.003 --	<0.004 --	<0.035 --	<0.027 --	<0.013 --	<0.006 --	<0.002 --
APR 24... ^a 24...	<0.005 --	<0.02 --	<0.002 --	<0.009 --	<0.005 --	<0.003 --	<0.004 --	<0.035 --	<0.027 --	E.003 --	<0.006 --	<0.002 --
JUN 12... ^c 12... ^a 12... ^b 12...	<0.005 -- -- --	<0.02 -- -- --	0.003 -- -- --	<0.009 -- -- --	<0.005 -- -- --	<0.003 -- -- --	<0.004 -- -- --	<0.035 -- -- --	<0.027 -- -- --	E.008 -- -- --	<0.006 -- -- --	<0.002 -- -- --
JUL 24... ^a 24...	<0.005 --	<0.02 --	<0.002 --	<0.009 --	<0.005 --	<0.003 --	<0.004 --	<0.035 --	<0.027 --	E.008 --	<0.006 --	<0.002 --
AUG 19... ^a 19...	<0.005 --	<0.02 --	<0.002 --	<0.009 --	<0.005 --	<0.003 --	<0.004 --	<0.035 --	<0.027 --	E.007 --	<0.006 --	<0.002 --
SEP 25... ^a 25...	<0.005 --	<0.02 --	<0.002 --	<0.009 --	<0.005 --	<0.003 --	<0.004 --	<0.035 --	<0.027 --	E.007 --	<0.006 --	<0.002 --
Date	Parathion, water, fltrd, ug/L (39542)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propanil, water, fltrd 0.7u GF ug/L (82685)
NOV 07... ^a 07...	<0.010 --	<0.006 --	<0.007 --	<0.004 --	<0.022 --	<0.006 --	<0.011 --	<0.01 --	<0.004 --	<0.010 --	<0.011 --	<0.02 --
JAN 07... ^a 07...	<0.010 --	<0.006 --	<0.007 --	<0.004 --	<0.022 --	<0.006 --	<0.011 --	M --	<0.004 --	<0.010 --	<0.011 --	<0.02 --
FEB 26... ^a 26...	<0.010 --	<0.006 --	<0.007 --	<0.004 --	<0.022 --	<0.006 --	<0.011 --	M --	<0.004 --	<0.010 --	<0.011 --	<0.02 --
APR 24... ^a 24...	<0.010 --	<0.006 --	<0.007 --	<0.004 --	<0.022 --	<0.006 --	<0.011 --	E.01 --	<0.004 --	<0.010 --	<0.011 --	<0.02 --
JUN 12... ^c 12... ^a 12... ^b 12...	<0.010 -- -- --	<0.006 -- -- --	<0.007 -- -- --	<0.004 -- -- --	<0.022 -- -- --	<0.006 -- -- --	<0.011 -- -- --	M -- -- --	<0.004 -- -- --	<0.010 -- -- --	<0.011 -- -- --	<0.02 -- -- --
JUL 24... ^a 24...	<0.010 --	<0.006 --	<0.007 --	<0.004 --	<0.022 --	<0.006 --	<0.011 --	M --	<0.004 --	<0.010 --	<0.011 --	<0.02 --
AUG 19... ^a 19...	<0.010 --	<0.006 --	<0.007 --	<0.004 --	<0.022 --	<0.006 --	<0.011 --	E.01 --	<0.004 --	<0.010 --	<0.011 --	<0.02 --
SEP 25... ^a 25...	<0.010 --	<0.006 --	<0.007 --	<0.004 --	<0.022 --	<0.006 --	<0.011 --	<0.01 --	<0.004 --	<0.010 --	<0.011 --	<0.02 --

06467500 MISSOURI RIVER AT YANKTON, SD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

			Date	Sima- zine, water, fltrd, ug/L (04035)	Tebu- thiuron water fltrd 0.7u GF ug/L (82670)	Terba- cil, water, fltrd 0.7u GF ug/L (82665)	Terbu- fos, water, fltrd 0.7u GF ug/L (82675)	Thio- bencarb water fltrd 0.7u GF ug/L (82681)	Tri- allate, water, fltrd 0.7u GF ug/L (82678)	Tri- flur- alin, water, fltrd 0.7u GF ug/L (82661)	Sus- pended sediment concentration mg/L (80154)	Suspnd. sediment, sieve diameter percent <.063mm (70331)					
			NOV 07...	<0.005	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009	3	99					
			^a 07...	--	--	--	--	--	--	--	3	98					
			JAN 07...	<0.005	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009	5	99					
			^a 07...	--	--	--	--	--	--	--	2	99					
			FEB 26...	<0.005	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009	3	98					
			^a 26...	--	--	--	--	--	--	--	3	98					
			APR 24...	E.004	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009	3	95					
			^a 24...	--	--	--	--	--	--	--	3	95					
			JUN 12...	<0.005	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009	8	98					
			^c 12...	--	--	--	--	--	--	--	--	--					
			^a 12...	--	--	--	--	--	--	--	9	100					
			^b 12...	--	--	--	--	--	--	--	--	--					
			JUL 24...	<0.005	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009	16	100					
			^a 24...	--	--	--	--	--	--	--	15	100					
			AUG 19...	<0.005	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009	13	99					
			^a 19...	--	--	--	--	--	--	--	19	98					
			SEP 25...	<0.005	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009	12	99					
			^a 25...	--	--	--	--	--	--	--	11	100					
			Date	Time	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Silica, water, fltrd, mg/L (00955)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ortho- phosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)	
			JAN ^a 07...	1528	0.02	E.005	<0.09	<0.13	<0.015	<0.002	<0.022	<0.007	<2	<0.30	<0.3	M	
			AUG ^a 19...	1148	--	--	--	--	--	--	--	--	--	--	--	--	
			Date		Beryllium, water, fltrd, ug/L (01010)	Boron, water, fltrd, ug/L (01020)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Manganese, water, fltrd, ug/L (01056)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selenium, water, fltrd, ug/L (01145)
			JAN ^a 07...		<0.06	<7	<0.04	<0.8	<0.015	<0.2	<10	<0.08	<0.5	<0.2	<0.3	<0.06	<0.5
			AUG ^a 19...		--	--	--	--	--	--	--	--	--	--	--	--	--
			Date		Silver, water, fltrd, ug/L (01075)	Thallium, water, fltrd, ug/L (01057)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, suspnd sediment total, mg/L (00689)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	2,6-Diethyl- aniline water fltrd 0.7u GF ug/L (82660)	Atrazine, water, fltrd, ug/L (39632)	CIAT, water, fltrd, ug/L (04040)
			JAN ^a 07...		<0.2	<0.04	<0.20	<0.1	1	<0.02	--	--	--	--	--	--	--
			AUG ^a 19...		--	--	--	--	--	--	<0.3	<0.1	<0.006	<0.004	<0.006	<0.007	<0.006

06467500 MISSOURI RIVER AT YANKTON, SD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Azin-phos-methyl, water, fltrd 0.7u GF ug/L (82686)	Ben-flur-alin, water, fltrd 0.7u GF ug/L (82673)	alpha-HCH, water, fltrd, ug/L (34253)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Chlor-pyri-fos, water, fltrd, ug/L (38933)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water, fltrd 0.7u GF ug/L (82682)	p,p-'DDE, water, fltrd, ug/L (34653)	Diazi-non, water, fltrd, ug/L (39572)	Diel-drin, water, fltrd, ug/L (39381)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)
JAN a07...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG a19...	<0.050	<0.010	<0.005	<0.002	<0.041	<0.020	<0.005	<0.018	<0.003	<0.003	<0.005	<0.005	<0.02
Date	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos, water, fltrd, ug/L (04095)	Lindane, water, fltrd, ug/L (39341)	Linuron, water, fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)
JAN a07...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG a19...	<0.004	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.013	<0.006	<0.002	<0.010	<0.006	<0.007
Date	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	cis-Per-methrin, water, fltrd 0.7u GF ug/L (82687)	Phorate, water, fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron, water, fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)
JAN a07...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG a19...	<0.004	<0.022	<0.006	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	<0.005	<0.02	<0.034	<0.02
Date	Thio-bencarb, water, fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)										
JAN a07...	--	--	--										
AUG a19...	<0.005	<0.002	<0.009										

< Less than.

a Field duplicate suspended sample collected for quality-control purposes.

b Field duplicate inorganic and organic constituents sampled for quality-control purposes.

c Centroid near-surface grab sample collected for quality-control purposes.

E Estimated value.

M Presence verified, not quantified.

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45° 56' 10", long 98° 10' 26", in SE¹/₄ SE¹/₄ sec. 34, T.129 N., R.60 W., Dickey County, Hydrologic Unit 10160003, at bridge on North Dakota-South Dakota State line road 6.5 mi south and 1 mi west from Ludden, ND.

DRAINAGE AREA.--5,480 mi², approximately, revised, of which about 3,300 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 2001 to September 2002. October 1981 to September 2001 equivalent discharge site formerly published as James River at Dakota Lake Dam near Ludden. October 1981 to September 1999 (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 1,200 ft above National Geodetic Vertical Datum of 1929.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	42	35	33	16	e11	e220	64	489	637	175	36
2	65	46	34	32	e16	e11	247	36	485	698	161	67
3	35	52	31	32	e16	e11	139	14	451	753	138	115
4	127	51	30	33	e16	e10	90	48	484	686	112	47
5	38	54	27	34	e16	e10	59	167	499	616	161	49
6	124	55	25	33	e16	e10	49	181	520	573	174	57
7	33	51	25	33	e15	e10	70	191	496	536	143	26
8	92	72	24	34	e15	e10	27	202	483	462	117	16
9	47	70	22	35	e13	e10	4.5	338	414	413	163	3.0
10	43	156	22	35	e13	e10	101	399	498	391	222	16
11	64	54	23	34	e12	e10	74	415	424	372	217	32
12	126	54	23	33	e12	e10	27	269	460	307	186	64
13	58	64	23	31	11	e10	1.2	277	478	195	128	101
14	118	66	23	30	11	e10	112	355	453	270	113	105
15	78	69	25	30	9.8	e12	182	324	437	282	182	86
16	63	48	27	29	10	e18	177	286	444	217	228	83
17	66	34	30	28	10	e33	29	409	518	238	169	77
18	120	61	35	25	e10	e62	68	480	501	192	135	146
19	59	80	37	23	11	e87	126	686	392	159	117	85
20	90	100	38	23	e12	e109	162	612	221	230	113	100
21	82	157	38	22	e13	e119	84	593	228	244	172	126
22	93	58	40	20	e13	e141	46	723	508	244	81	141
23	56	106	40	19	e13	e187	26	722	517	214	39	88
24	41	44	40	17	e13	237	67	730	516	197	91	158
25	44	34	38	16	e12	265	87	686	518	262	87	72
26	69	35	37	15	e12	260	36	624	448	289	88	166
27	54	35	38	16	e11	283	72	609	479	237	48	145
28	34	34	38	16	e11	255	105	653	568	205	67	104
29	225	37	39	15	---	226	71	542	641	174	109	115
30	92	36	33	16	---	216	66	682	657	193	63	98
31	41	---	30	16	---	e199	---	529	---	184	58	---
TOTAL	2,353	1,855	970	808	358.8	2,852	2,624.7	12,846	14,227	10,670	4,057	2,524.0
MEAN	75.9	61.8	31.3	26.1	12.8	92.0	87.5	414	474	344	131	84.1
MAX	225	157	40	35	16	283	247	730	657	753	228	166
MIN	33	34	22	15	9.8	10	1.2	14	221	159	39	3.0
AC-FT	4,670	3,680	1,920	1,600	712	5,660	5,210	25,480	28,220	21,160	8,050	5,010

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2003, BY WATER YEAR (WY)

MEAN	200	141	65.2	28.7	30.1	330	813	606	464	390	305	243
MAX	867	613	239	77.1	88.1	853	4,617	2,316	1,447	1,181	1,143	1,003
(WY)	(1994)	(2001)	(2001)	(1995)	(2000)	(1995)	(1997)	(1997)	(1997)	(1995)	(1993)	(1999)
MIN	1.86	0.20	0.28	0.056	0.62	26.0	33.4	9.92	2.12	0.015	0.000	0.011
(WY)	(1989)	(1991)	(1991)	(1991)	(1989)	(1990)	(1990)	(1990)	(1988)	(1988)	(1988)	(1990)

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE—Continued

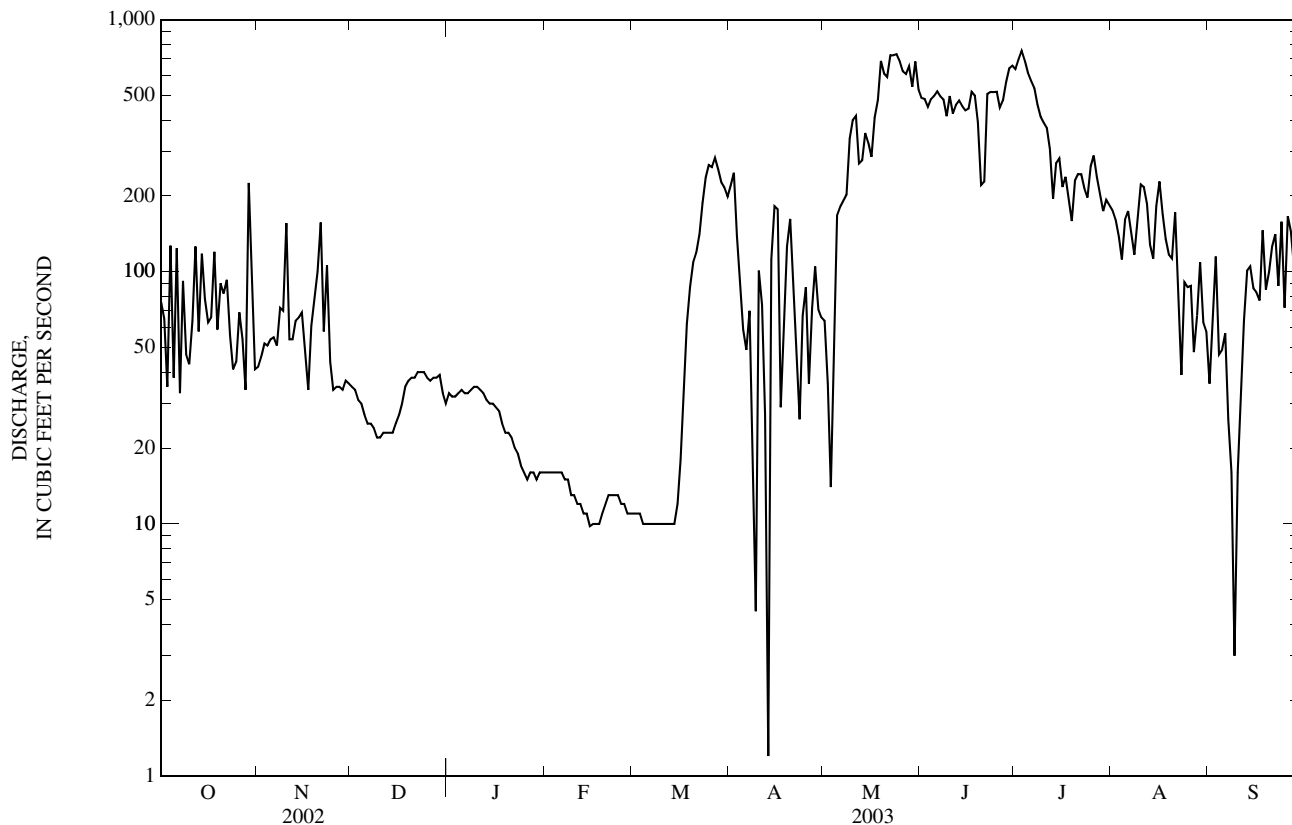
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1982 - 2003 ^a	
ANNUAL TOTAL	39,043.7		56,145.5		302	
ANNUAL MEAN	107		154		969	
HIGHEST ANNUAL MEAN					10.3	
LOWEST ANNUAL MEAN					7,500	
HIGHEST DAILY MEAN	425	Jul 22	753	Jul 3	7,500	Apr 6, 1997
LOWEST DAILY MEAN	2.2	Sep 17	1.2	Apr 13	0.00	Oct 8, 1981
ANNUAL SEVEN-DAY MINIMUM	23	Dec 8	10	Mar 4	0.00	Jul 10, 1985
MAXIMUM PEAK FLOW			1,130	Jul 3	7,500	Apr 6, 1997
MAXIMUM PEAK STAGE			(^b)	Jul 3	^c 98.04	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	77,440		111,400		218,800	
10 PERCENT EXCEEDS	262		483		954	
50 PERCENT EXCEEDS	72		70		91	
90 PERCENT EXCEEDS	34		13		0.60	

a Historic discharge data, water years 1982-2003, from equivalent station, James River at Dakota Lake Dam near Ludden, ND (06470875).

b Unknown.

c From high-water mark at current gage location.

e Estimated.



06471000 JAMES RIVER AT COLUMBIA, SD

LOCATION.--Lat 45° 36' 13", long 98° 18' 36", in NW¹/₄ NW¹/₄ sec.33, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, on left bank 20 ft downstream from highway bridge, 0.6 mi south of Columbia, 0.9 mi downstream from Chicago and North Western Railway Co. bridge, 0.3 mi upstream from Elm River, and 12.7 mi downstream from Columbia Road Dam.

DRAINAGE AREA.--5,857 mi², of which about 3,376 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,272.91 ft above NGVD of 1929. From Oct. 1, 1945, to Oct. 4, 1957, nonrecording gage. From Oct. 5, 1957, to Sept. 30, 1980, water-stage recorder. Both gages described above at site 3.3 mi upstream from present site and at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, which reached maximum pool elevation in May 1974. Maximum discharge prior to Sept. 30, 1974, 5,420 ft³/s, May 24, 25, 1950, gage height, 16.89 ft, from graph based on gage readings; maximum daily reverse flow, 1,860 ft³/s, Apr. 8, 1952, backwater from Elm River. U.S. Army Corps of Engineers gage-height telemeter and 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	83	e40	e26	e0.00	e0.00	e1.5	1.2	437	533	150	39
2	30	90	e40	e27	e0.00	e0.00	e0.90	18	447	514	149	34
3	29	105	e29	e28	e0.00	e0.00	e0.40	74	450	497	149	33
4	28	116	e26	e29	e0.00	e0.00	e0.10	101	454	490	149	31
5	38	98	e28	e35	e0.00	e0.00	e0.03	99	458	480	149	25
6	36	93	e28	e41	e0.00	e0.00	e0.01	89	454	464	149	22
7	40	87	e31	e39	e0.00	e0.00	e0.00	85	450	449	149	20
8	30	82	e32	e41	e0.00	e0.00	e0.00	91	444	437	148	18
9	37	84	e29	e43	e0.00	e0.00	e0.00	142	437	441	152	14
10	30	83	e28	e21	e0.00	e0.00	e0.00	165	443	444	160	13
11	23	69	e31	e15	e0.00	e0.00	0.05	180	443	440	155	12
12	38	e67	e34	e10	e0.00	e0.00	0.20	187	441	435	153	6.0
13	47	e80	e36	e6.6	e0.00	e0.05	0.18	202	439	427	143	5.0
14	44	e79	e37	e5.5	e0.00	e0.50	0.01	224	434	423	135	4.6
15	55	e76	e41	e5.0	e0.00	e4.0	0.11	241	428	407	133	5.0
16	60	e58	e50	e4.2	e0.00	e10	0.92	257	431	380	126	6.2
17	63	e60	e55	e3.8	e0.00	e18	2.5	269	468	364	123	12
18	68	e56	e56	e2.8	e0.00	e25	1.8	279	468	354	124	15
19	80	e62	e59	e2.5	e0.00	e25	3.2	293	451	344	120	13
20	85	e67	e55	e2.1	e0.00	e18	1.7	317	446	331	119	16
21	98	e73	e30	e1.7	e0.00	e13	0.90	333	437	320	119	17
22	101	e73	e32	e1.1	e0.00	e9.0	0.60	347	443	311	119	16
23	100	e57	e32	e0.80	e0.00	e7.0	0.66	363	440	300	109	18
24	93	e40	e26	e0.50	e0.00	5.7	0.45	378	462	287	93	50
25	89	e41	e20	e0.00	e0.00	5.2	0.22	388	521	261	80	60
26	86	e39	e19	e0.00	e0.00	5.0	0.39	390	565	208	76	67
27	89	e38	e18	e0.00	e0.00	4.5	0.07	390	575	172	54	69
28	75	e38	e18	e0.00	e0.00	4.1	0.00	392	573	160	48	70
29	83	e45	e21	e0.00	---	3.6	0.32	396	564	156	46	70
30	82	e46	e24	e0.00	---	e3.0	0.49	406	551	155	46	71
31	80	---	e27	e0.00	---	e2.1	---	423	---	152	46	---
TOTAL	1,857	2,085	1,032	391.60	0.00	162.75	17.71	7,520.2	14,054	11,136	3,671	851.8
MEAN	59.9	69.5	33.3	12.6	0.000	5.25	0.59	243	468	359	118	28.4
MAX	101	116	59	43	0.00	25	3.2	423	575	533	160	71
MIN	20	38	18	0.00	0.00	0.00	0.00	1.2	428	152	46	4.6
AC-FT	3,680	4,140	2,050	777	0.00	323	35	14,920	27,880	22,090	7,280	1,690

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2003, BY WATER YEAR (WY)*

MEAN	192	165	81.3	25.1	22.4	67.2	555	588	401	361	277	204
MAX	949	930	478	113	103	468	2,856	2,661	1,610	1,211	1,085	1,084
(WY)	(1994)	(1994)	(1994)	(2001)	(1998)	(2000)	(1997)	(1997)	(1997)	(1997)	(1995)	(1993)
MIN	0.000	0.000	0.000	0.000	0.000	-215	0.014	0.000	0.000	0.000	0.000	0.000
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1997)	(1977)	(1977)	(1977)	(1977)	(1977)	(1976)

06471000 JAMES RIVER AT COLUMBIA, SD—Continued

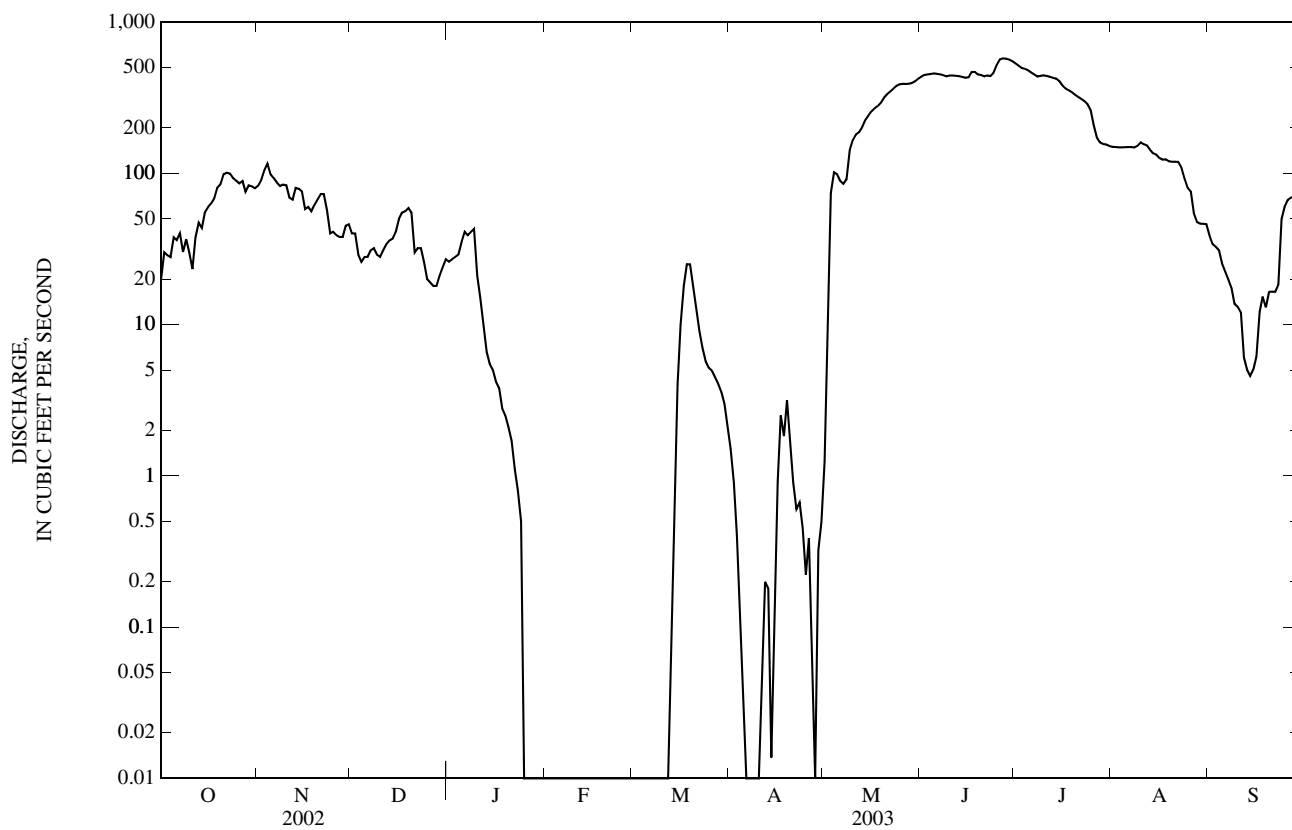
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1975 - 2003*	
ANNUAL TOTAL	30,810.5		42,779.06		246	
ANNUAL MEAN	84.4		117		856	
HIGHEST ANNUAL MEAN					0.063	
LOWEST ANNUAL MEAN					1977	
HIGHEST DAILY MEAN	262	May 19	575	Jun 27	4,100	Apr 30, 1997
LOWEST DAILY MEAN	8.5	Sep 18	0.00	Jan 25	^a -2,400	Mar 30, 1997
ANNUAL SEVEN-DAY MINIMUM	20	Sep 16	0.00	Jan 25	^a -1,410	Mar 27, 1997
MAXIMUM PEAK FLOW			581	Jun 28	^b 4,130	Apr 30, 1997
MAXIMUM PEAK STAGE			10.45	Jun 28	^a 19.08	Apr 19, 1997
ANNUAL RUNOFF (AC-FT)	61,110		84,850		178,000	
10 PERCENT EXCEEDS	191		437		855	
50 PERCENT EXCEEDS	65		40		50	
90 PERCENT EXCEEDS	29		0.00		0.00	

* Regulated period only (1975-2003). See REMARKS.

a Backwater from Elm River.

b Gage height, 18.63 ft, backwater.

e Estimated.



06471065 ELM RIVER NEAR FREDERICK, SD

LOCATION.--Lat 45° 50'15", long 98° 42'06", in NW¹/₄ NW¹/₄ NW¹/₄ sec.8, T.127 N., R.65 W., Brown County, Hydrologic Unit 10160004, on right bank at downstream side of bridge on Brown County Road 5, 1.7 mi downstream of Elm Lake Dam on Elm River and 8.8 mi west of Frederick.

DRAINAGE AREA.--To be determined.

PERIOD OF RECORD.--October 1999 to current year (seasonal mean daily gage height and yearly instantaneous peak gage height and discharge).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,455 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. Daily gage heights not published for no-flow periods: Mar. 1-12 and Aug. 6-8, 19-23. Satellite data-collection platform, telemeter, and seasonal National Weather Service rain gage at site. Flow regulated to some extent for Aberdeen municipal water supply by rolled earth dam forming Elm Lake 1.7 mi upstream with a storage capacity of 15,200 acre-ft. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

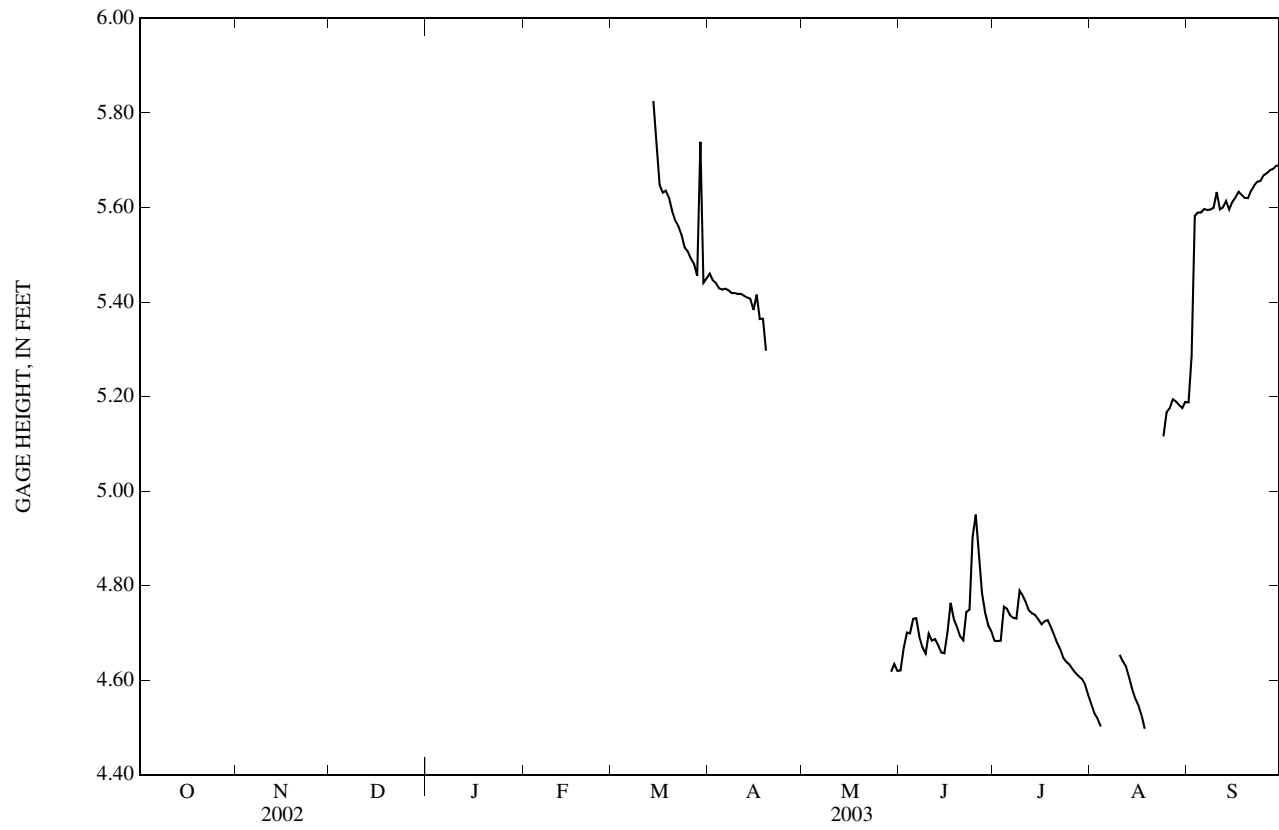
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,550 ft³/s, Mar. 24, 2001, gage height, 13.58 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12 ft³/s, Mar. 14, gage height, 5.72 ft; maximum gage height, 6.27 ft, Mar. 29, backwater from ice.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	5.46	---	4.62	4.68	4.55	5.19
2	---	---	---	---	---	---	5.45	---	4.67	4.68	4.53	5.29
3	---	---	---	---	---	---	5.44	---	4.70	4.68	4.52	5.58
4	---	---	---	---	---	---	5.43	---	4.70	4.76	4.50	5.59
5	---	---	---	---	---	---	5.43	---	4.73	4.75	---	5.59
6	---	---	---	---	---	---	5.43	---	4.73	4.74	---	5.60
7	---	---	---	---	---	---	5.42	---	4.69	4.73	---	5.59
8	---	---	---	---	---	---	5.42	---	4.67	4.73	---	5.60
9	---	---	---	---	---	---	5.42	---	4.66	4.79	---	5.60
10	---	---	---	---	---	---	5.42	---	4.70	4.78	4.65	5.63
11	---	---	---	---	---	---	5.42	---	4.68	4.76	4.64	5.60
12	---	---	---	---	---	---	5.41	---	4.69	4.75	4.63	5.60
13	---	---	---	---	---	---	5.41	---	4.67	4.74	4.61	5.61
14	---	---	---	---	---	5.82	5.41	---	4.66	4.74	4.58	5.60
15	---	---	---	---	---	5.74	5.38	---	4.66	4.73	4.56	5.61
16	---	---	---	---	---	5.65	5.42	---	4.70	4.72	4.55	5.62
17	---	---	---	---	---	5.63	5.36	---	4.76	4.72	4.53	5.63
18	---	---	---	---	---	5.64	5.36	---	4.73	4.73	4.50	5.63
19	---	---	---	---	---	5.62	5.30	---	4.71	4.71	---	5.62
20	---	---	---	---	---	5.59	---	---	4.69	4.70	---	5.62
21	---	---	---	---	---	5.57	---	---	4.68	4.68	---	5.64
22	---	---	---	---	---	5.56	---	---	4.74	4.67	---	5.65
23	---	---	---	---	---	5.54	---	---	4.75	4.65	---	5.65
24	---	---	---	---	---	5.52	---	---	4.90	4.64	5.12	5.66
25	---	---	---	---	---	5.51	---	---	4.95	4.63	5.17	5.67
26	---	---	---	---	---	5.49	---	---	4.86	4.62	5.18	5.67
27	---	---	---	---	---	5.48	---	---	4.78	4.61	5.19	5.68
28	---	---	---	---	---	5.46	---	---	4.74	4.61	5.19	5.68
29	---	---	---	---	---	5.74	---	4.62	4.72	4.60	5.18	5.69
30	---	---	---	---	---	5.44	---	4.63	4.70	4.59	5.18	5.69
31	---	---	---	---	---	5.45	---	4.62	---	4.57	5.19	---
MEAN	---	---	---	---	---	---	---	---	4.72	4.69	---	5.60
MAX	---	---	---	---	---	---	---	---	4.95	4.79	---	5.69
MIN	---	---	---	---	---	---	---	---	4.62	4.57	---	5.19

06471065 ELM RIVER NEAR FREDERICK, SD—Continued



06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45° 56'20", long 98° 27'08", in SW¹/₄ SE¹/₄ sec.33, T.129 N., R.62 W., Dickey County, ND, Hydrologic Unit 10160004, on left bank 0.4 mi upstream from State line, 7.8 mi northeast of Frederick, SD, and 15.7 mi upstream from mouth.

DRAINAGE AREA.--716 mi², of which about 332 mi² is probably noncontributing.

PERIOD OF RECORD.--June 1956 to current year.

REVISED RECORDS.--WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,365 ft above NGVD of 1929, from topographic map. Prior to June 14, 1962, nonrecording gage at site 0.4 mi downstream at datum 0.94 ft lower.

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 2002 TO SEPTEMBER 2003
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	0.00	e1.2	0.30	27	63	2.7	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	2.4	0.27	26	54	2.1	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	1.8	0.25	23	45	1.5	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	1.3	1.1	22	40	1.1	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	1.1	2.7	20	35	0.77	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.84	8.2	20	32	0.58	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.69	6.6	19	30	0.43	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.47	7.1	19	31	0.37	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.36	32	18	33	0.51	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.44	52	20	30	0.60	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.34	49	20	27	0.43	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.25	45	26	26	0.32	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.17	52	29	24	0.24	0.00
14	0.00	0.00	0.00	0.00	0.00	e0.50	0.21	61	34	24	0.21	0.00
15	0.00	0.00	0.00	0.00	0.00	e1.0	0.15	59	38	23	0.23	0.00
16	0.00	0.00	0.00	0.00	0.00	e0.96	0.50	68	47	21	0.23	0.00
17	0.00	0.00	0.00	0.00	0.00	e0.92	0.42	95	108	19	0.17	0.00
18	0.00	0.00	0.00	0.00	0.00	e0.84	0.32	128	137	17	0.15	0.00
19	0.00	0.00	0.00	0.00	0.00	e0.47	0.42	142	124	16	0.13	0.00
20	0.00	0.00	0.00	0.00	0.00	e0.03	0.59	148	101	14	0.11	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.67	161	84	13	0.11	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.92	169	78	13	0.07	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.90	148	68	12	0.05	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.77	119	61	11	0.06	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.51	90	54	9.5	0.04	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.28	71	52	8.3	0.03	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.26	59	57	7.1	0.01	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.21	52	65	6.3	0.00	0.00
29	0.00	0.00	0.00	0.00	---	0.00	0.27	43	70	5.7	0.00	0.00
30	0.00	0.00	0.00	0.00	---	0.00	0.31	39	70	4.1	0.00	0.00
31	0.00	---	0.00	0.00	---	0.00	---	31	---	3.4	0.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	4.72	19.07	1,939.52	1,537	697.4	13.25	0.00
MEAN	0.000	0.000	0.000	0.000	0.000	0.15	0.64	62.6	51.2	22.5	0.43	0.000
MAX	0.00	0.00	0.00	0.00	0.00	1.0	2.4	169	137	63	2.7	0.00
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.25	18	3.4	0.00	0.00
AC-FT	0.00	0.00	0.00	0.00	0.00	9.4	38	3,850	3,050	1,380	26	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2003, BY WATER YEAR (WY)

MEAN	3.02	2.07	2.04	0.38	0.99	85.6	112	40.6	18.4	29.9	6.21	3.57
MAX	68.8	50.1	68.1	6.61	12.0	419	840	418	131	446	142	91.1
(WY)	(1999)	(1999)	(1999)	(1999)	(1998)	(1966)	(1997)	(1999)	(1964)	(1962)	(1966)	(1999)
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	(1957)	(1957)	(1957)	(1957)	(1957)	(1957)	(1959)	(1959)	(1959)	(1959)	(1959)	(1958)

06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1957 - 2003	
ANNUAL TOTAL	631.80		4,210.96		^a 25.5	
ANNUAL MEAN	1.73		11.5		^b 116	
HIGHEST ANNUAL MEAN					^b 0.000	
LOWEST ANNUAL MEAN					1997	
HIGHEST DAILY MEAN	18	Jun 25	169	May 22	5,500	Apr 11, 1969
LOWEST DAILY MEAN	0.00	Jul 14	0.00	Oct 1	^c 0.00	Oct 1, 1956
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 14	0.00	Oct 1	0.00	Oct 1, 1956
MAXIMUM PEAK FLOW			175	May 22	^d 5,930	Apr 11, 1969
MAXIMUM PEAK STAGE			5.50	May 22	^f 16.19	Mar 29, 1997
ANNUAL RUNOFF (AC-FT)	1,250		8,350		18,500	
10 PERCENT EXCEEDS	6.4		45		36	
50 PERCENT EXCEEDS	0.23		0.00		0.10	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Median of annual mean discharges, 16 ft³/s.

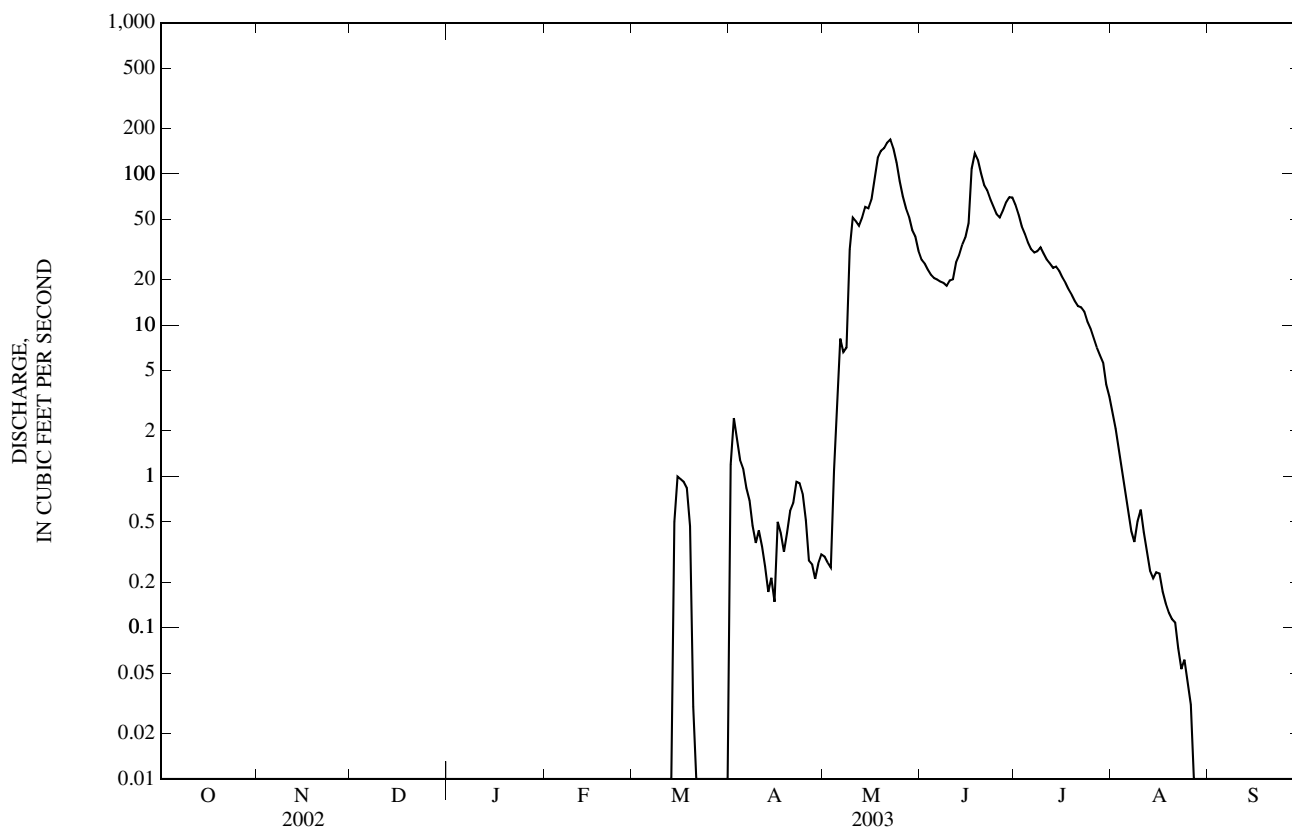
b Also 1988 and 1990.

c No flow for long periods in most years.

d Gage height, 16.05 ft, backwater from ice.

e Estimated.

f Backwater from ice.



06471500 ELM RIVER AT WESTPORT, SD

LOCATION.--Lat 45° 39' 22", long 98° 29' 48", in SW¹/₄ NW¹/₄ sec.12, T.125 N., R.64 W., Brown County, Hydrologic Unit 10160004, on upstream side of highway bridge, 0.5 mi north of Westport, 0.7 mi upstream from Chicago and North Western Railway Co. bridge, 9.3 mi downstream from Willow Creek, and 30.4 mi upstream from mouth.

DRAINAGE AREA.--1,493 mi², of which about 444 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,309.3 ft above NGVD of 1929. Prior to Aug. 6, 1951, and Apr. 8 to Sept. 9, 1952, nonrecording gage 12 ft upstream at same datum. Aug. 6, 1951, to Apr. 7, 1952, water-stage recorder at present site and datum.

REMARKS.--Records good except those for Sept. 8-30, which are fair, and those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Flow regulated for Aberdeen municipal water supply by dam forming Elm Lake and other small reservoirs upstream, combined capacity, about 16,000 acre-ft. 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	3.0	e6.4	e5.2	e5.4	e0.96	2.6	5.1	24	35	4.1	0.57
2	2.4	3.0	e6.5	e5.2	e5.6	e0.81	3.6	4.8	20	33	3.6	0.52
3	2.2	3.2	e6.4	e5.3	e5.7	e0.81	4.1	4.9	24	29	3.4	0.60
4	2.6	3.6	e6.5	e5.2	e5.5	e0.74	4.3	10	18	28	3.3	0.40
5	2.6	3.5	e6.6	e5.3	e5.3	e0.68	4.3	14	18	22	3.2	0.39
6	2.6	3.2	e6.7	e5.2	e4.4	e0.73	4.2	18	14	18	3.1	0.37
7	2.3	3.2	e6.9	e5.1	e3.6	e0.70	4.0	15	8.4	14	2.9	0.40
8	2.0	3.4	e7.2	e5.4	e3.3	e0.66	3.9	19	6.6	11	2.6	0.35
9	2.1	3.4	7.3	e4.9	e3.0	e0.62	3.8	39	5.2	12	4.1	0.08
10	2.1	3.6	7.4	e4.8	e2.7	e0.58	3.5	44	8.4	11	5.6	0.09
11	2.1	3.2	7.4	e4.3	e2.5	e0.54	3.8	55	9.2	12	4.3	0.03
12	2.3	3.1	7.4	e4.7	e2.3	e0.50	4.1	57	8.7	10	3.5	0.08
13	2.2	3.1	7.4	e4.7	e2.2	e0.46	4.1	55	5.3	8.2	3.0	0.40
14	2.0	3.2	7.4	e4.7	e2.2	e0.89	3.9	60	4.5	7.6	2.6	0.15
15	2.3	2.9	7.4	e4.6	e1.9	e1.4	3.8	68	11	7.6	2.3	0.03
16	1.5	4.1	7.4	e4.9	e1.9	e1.9	9.1	68	19	6.4	2.0	0.11
17	1.5	6.6	7.6	e5.0	e1.8	e2.3	8.7	74	22	5.5	1.8	0.15
18	2.2	6.9	8.4	e5.2	e2.1	e2.3	8.2	88	22	4.5	1.6	0.46
19	2.5	6.6	7.7	e5.3	e1.8	e2.5	9.8	110	59	3.9	1.4	0.22
20	2.1	6.8	6.2	e5.3	e1.9	e2.5	9.6	125	62	3.4	1.2	0.08
21	2.2	e6.8	e5.6	e5.1	e1.7	e2.4	8.1	132	54	3.0	0.92	0.02
22	2.6	e6.2	e5.4	e4.9	e1.4	e2.3	8.8	145	53	2.6	0.87	0.07
23	2.6	e6.2	e5.2	e4.6	e1.3	e2.3	8.5	156	43	2.3	0.75	0.07
24	2.7	e6.0	e5.0	e4.8	e1.1	e2.3	7.9	150	52	2.2	0.81	0.02
25	2.8	e6.2	e4.9	e5.3	e0.96	e2.1	7.1	128	70	3.2	0.91	0.00
26	2.8	e6.3	e4.9	e5.3	e0.96	e2.0	6.5	101	46	6.6	0.97	0.05
27	3.0	e6.3	e5.0	e5.4	e1.0	e2.0	6.0	82	38	7.1	0.86	0.02
28	3.3	e6.5	e5.1	e5.7	e0.96	e1.8	4.9	63	32	7.0	1.0	0.02
29	3.5	e6.8	e5.2	e5.7	---	1.6	5.6	43	32	6.3	0.88	0.04
30	3.4	e6.3	e5.3	e5.4	---	2.0	5.7	34	34	5.6	0.76	0.03
31	3.0	---	e5.0	e5.4	---	2.0	---	38	---	4.8	0.57	---
TOTAL	75.8	143.2	198.8	157.9	74.48	45.38	172.5	2,005.8	823.3	332.8	68.90	5.82
MEAN	2.45	4.77	6.41	5.09	2.66	1.46	5.75	64.7	27.4	10.7	2.22	0.19
MAX	3.5	6.9	8.4	5.7	5.7	2.5	9.8	156	70	35	5.6	0.60
MIN	1.5	2.9	4.9	4.3	0.96	0.46	2.6	4.8	4.5	2.2	0.57	0.00
AC-FT	150	284	394	313	148	90	342	3,980	1,630	660	137	12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2003, BY WATER YEAR (WY)

MEAN	9.08	7.61	6.22	3.51	7.20	173	259	86.4	50.3	52.2	14.5	9.30
MAX	138	142	137	19.9	113	1,205	2,399	777	584	606	197	173
(WY)	(1999)	(1999)	(1999)	(1946)	(1996)	(1997)	(1969)	(1995)	(1964)	(1962)	(1993)	(1999)
MIN	0.79	0.74	0.20	0.20	0.000	1.03	0.99	0.63	0.61	2.81	0.53	0.19
(WY)	(1979)	(1946)	(1946)	(1950)	(1949)	(1952)	(1957)	(1959)	(1946)	(1949)	(1946)	(2003)

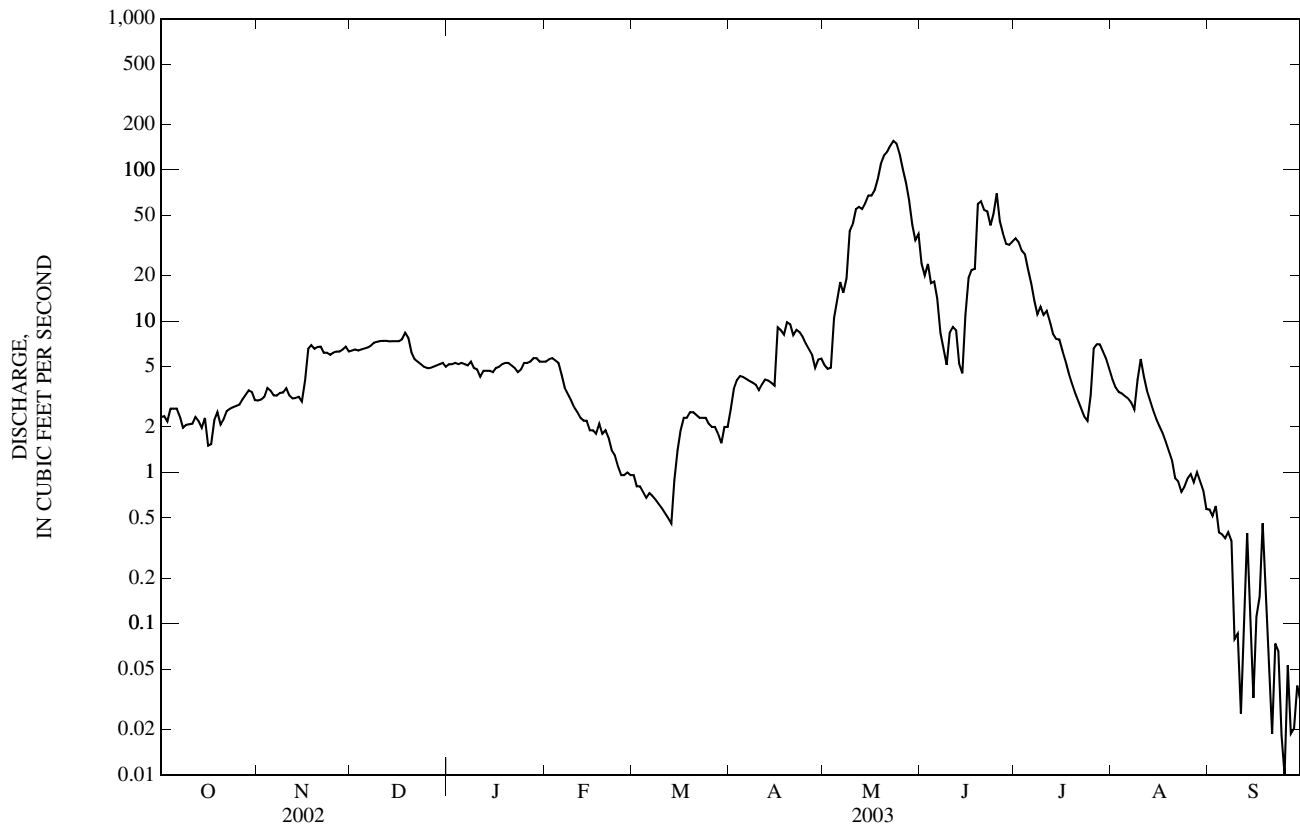
06471500 ELM RIVER AT WESTPORT, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1946 - 2003	
ANNUAL TOTAL	1,698.89		4,104.68		^a 56.6	
ANNUAL MEAN	4.65		11.2		277	
HIGHEST ANNUAL MEAN					4.12	
LOWEST ANNUAL MEAN					11,900	
HIGHEST DAILY MEAN	18	Aug 19	156	May 23	11,900	Apr 10, 1969
LOWEST DAILY MEAN	0.00	Jun 29	0.00	Sep 25	^b 0.00	Jan 27, 1946
ANNUAL SEVEN-DAY MINIMUM	0.18	Jun 25	0.03	Sep 24	0.00	Jan 27, 1946
MAXIMUM PEAK FLOW			158	May 23	12,600	Apr 10, 1969
MAXIMUM PEAK STAGE			5.60	May 23	22.11	Apr 10, 1969
ANNUAL RUNOFF (AC-FT)	3,370		8,140		41,020	
10 PERCENT EXCEEDS	8.8		32		73	
50 PERCENT EXCEEDS	3.7		4.3		5.1	
90 PERCENT EXCEEDS	1.3		0.64		1.2	

a Median of annual mean discharges, 35 ft³/s.

b No flow for many days in most years prior to 1960.

c Estimated.



06471510 ELM RIVER NEAR ORDWAY, SD

LOCATION.--Lat 45° 33' 45", long 98° 24' 45", in NE¹/₄ SE¹/₄ sec. 9, T.124 N., R.63 W., Brown County, Hydrologic Unit 10160004, on left bank at upstream side of bridge on Brown County Road 14, 1.1 mi south of Ordway and 1.9 mi upstream of Aberdeen Municipal water treatment plant dam.

DRAINAGE AREA.--1,511 mi², of which about 444 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1999 to current year (seasonal mean daily gage height and yearly instantaneous peak gage height and discharge). Prior to October 1999 (March to April 1997), at downstream side of bridge, discharge measurements only.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,300 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. Satellite data-collection platform and telemeter at station. Some regulation at low flow for Aberdeen municipal water supply by dam forming Elm Lake and other small reservoirs upstream, combined capacity, about 16,500 acre-ft. 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, 2,550 ft³/s, Apr. 11, 2001, gage height, 10.76 ft.

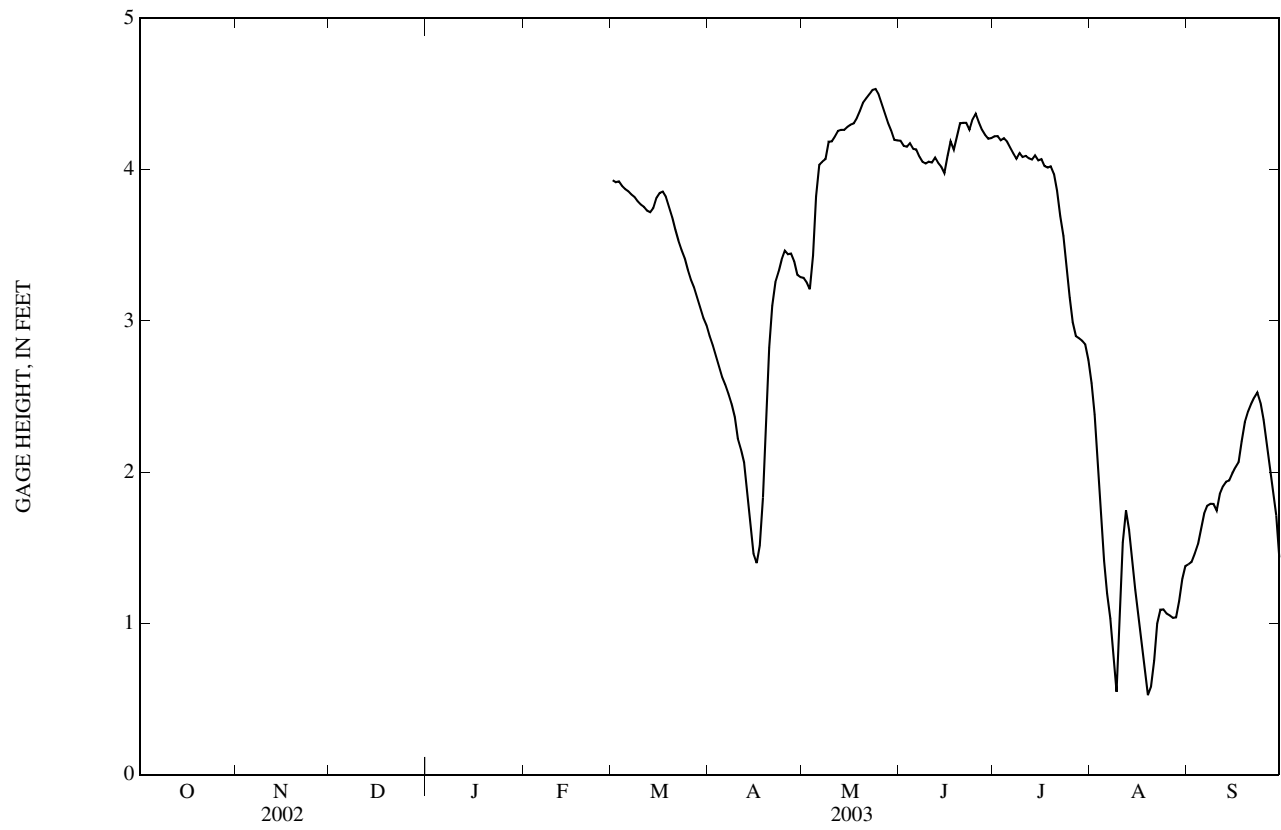
EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, observed, 8,680 ft³/s, Mar. 31, 1997, gage height, 15.10 ft; maximum gage height, observed, 15.55 ft, Mar. 29, 1997, backwater from ice.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 142 ft³/s, May 23, gage height, 4.55 ft.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	3.93	2.90	3.28	4.19	4.22	2.59	1.39
2	---	---	---	---	---	3.92	2.84	3.25	4.16	4.22	2.38	1.41
3	---	---	---	---	---	3.92	2.77	3.21	4.15	4.19	2.08	1.46
4	---	---	---	---	---	3.89	2.70	3.43	4.17	4.21	1.73	1.52
5	---	---	---	---	---	3.87	2.63	3.82	4.14	4.19	1.41	1.62
6	---	---	---	---	---	3.86	2.58	4.03	4.13	4.15	1.20	1.73
7	---	---	---	---	---	3.84	2.52	4.05	4.09	4.11	1.03	1.78
8	---	---	---	---	---	3.82	2.45	4.07	4.05	4.07	0.79	1.79
9	---	---	---	---	---	3.79	2.36	4.18	4.04	4.11	0.55	1.79
10	---	---	---	---	---	3.77	2.22	4.19	4.05	4.08	1.08	1.75
11	---	---	---	---	---	3.75	2.15	4.22	4.05	4.09	1.54	1.86
12	---	---	---	---	---	3.73	2.06	4.26	4.08	4.07	1.75	1.91
13	---	---	---	---	---	3.72	1.88	4.26	4.05	4.07	1.62	1.94
14	---	---	---	---	---	3.75	1.67	4.26	4.02	4.09	1.42	1.94
15	---	---	---	---	---	3.81	1.46	4.28	3.98	4.06	1.22	1.99
16	---	---	---	---	---	3.85	1.40	4.30	4.09	4.07	1.05	2.03
17	---	---	---	---	---	3.85	1.51	4.30	4.19	4.02	0.87	2.07
18	---	---	---	---	---	3.82	1.83	4.34	4.13	4.01	0.69	2.20
19	---	---	---	---	---	3.75	2.37	4.39	4.22	4.02	0.53	2.33
20	---	---	---	---	---	3.69	2.82	4.44	4.31	3.97	0.58	2.40
21	---	---	---	---	---	3.61	3.10	4.47	4.31	3.86	0.75	2.45
22	---	---	---	---	---	3.53	3.26	4.50	4.31	3.69	1.00	2.49
23	---	---	---	---	---	3.47	3.32	4.53	4.26	3.56	1.09	2.53
24	---	---	---	---	---	3.42	3.40	4.53	4.33	3.37	1.09	2.46
25	---	---	---	---	---	3.34	3.46	4.50	4.37	3.16	1.07	2.35
26	---	---	---	---	---	3.27	3.44	4.43	4.31	2.99	1.05	2.21
27	---	---	---	---	---	3.22	3.44	4.37	4.26	2.90	1.04	2.07
28	---	---	---	---	---	3.15	3.40	4.31	4.23	2.89	1.04	1.90
29	---	---	---	---	---	3.08	3.30	4.26	4.20	2.87	1.15	1.71
30	---	---	---	---	---	3.02	3.29	4.20	4.21	2.85	1.29	1.44
31	---	---	---	---	---	2.97	---	4.19	---	2.74	1.38	---
MEAN	---	---	---	---	---	3.63	2.62	4.16	4.17	3.77	1.23	1.95
MAX	---	---	---	---	---	3.93	3.46	4.53	4.37	4.22	2.59	2.53
MIN	---	---	---	---	---	2.97	1.40	3.21	3.98	2.74	0.53	1.39

06471510 ELM RIVER NEAR ORDWAY, SD—Continued



06471770 MOCCASIN CREEK AT ABERDEEN, SD

LOCATION.--Lat 45° 28' 13", long 98° 27' 13", in SW¹/₄ NW¹/₄ NW¹/₄ sec. 17, T. 123 N., R. 63 W., Brown County, Hydrologic Unit 10160003, on left bank at upstream side of bridge on Roosevelt Street, 1.6 mi east of Brown County Courthouse, and 3.4 mi upstream from Foot Creek.

DRAINAGE AREA.--57.6 mi².

PERIOD OF RECORD.--October 1999 to current year (seasonal mean daily gage height and yearly instantaneous peak discharge). Prior to October 1999 (March and April 1997), miscellaneous discharge measurements 1.0 mi downstream at U.S. Highway 12 bridge.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,295 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. Record of peak discharge fair. Satellite data-collection platform and telemeter 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, 100 ft³/s, Apr. 10, 2001, gage height, 4.86 ft.

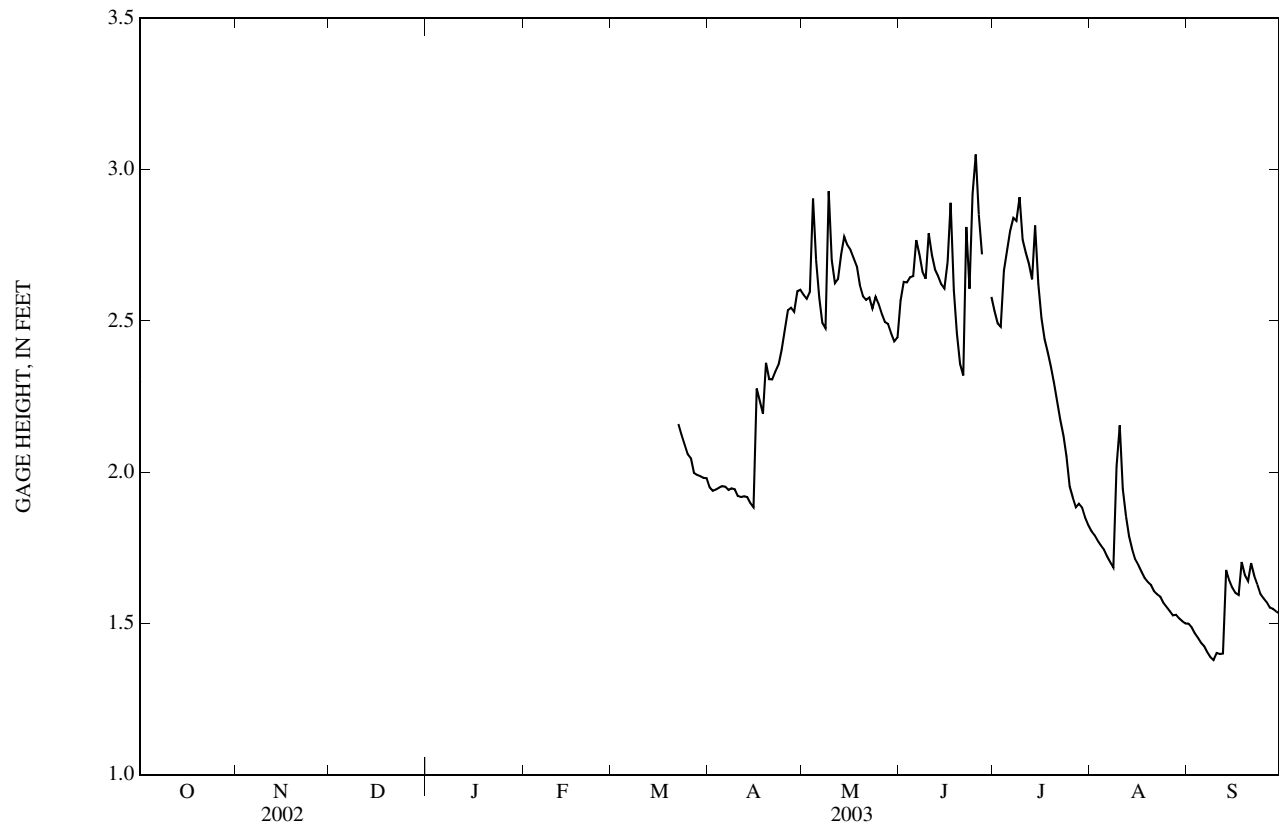
EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, observed, 389 ft³/s, Apr. 5, 1997, gage height, 6.90 ft; maximum gage height, observed, 7.27 ft, backwater from ice, Apr. 1, 1997.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42 ft³/s, July 9, gage height, 3.03 ft; maximum gage height, 3.28 ft, May 4.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	1.95	2.59	2.57	2.53	1.80	1.50
2	---	---	---	---	---	---	1.94	2.57	2.63	2.49	1.79	1.49
3	---	---	---	---	---	---	1.94	2.60	2.63	2.48	1.77	1.47
4	---	---	---	---	---	---	1.95	2.90	2.64	2.67	1.76	1.45
5	---	---	---	---	---	---	1.95	2.70	2.65	2.73	1.74	1.44
6	---	---	---	---	---	---	1.95	2.58	2.77	2.80	1.72	1.42
7	---	---	---	---	---	---	1.94	2.49	2.72	2.84	1.70	1.41
8	---	---	---	---	---	---	1.95	2.48	2.66	2.83	1.68	1.39
9	---	---	---	---	---	---	1.94	2.93	2.64	2.91	2.02	1.38
10	---	---	---	---	---	---	1.92	2.70	2.79	2.77	2.15	1.40
11	---	---	---	---	---	---	1.92	2.62	2.72	2.72	1.94	1.40
12	---	---	---	---	---	---	1.92	2.64	2.67	2.69	1.85	1.40
13	---	---	---	---	---	---	1.92	2.72	2.65	2.64	1.79	1.68
14	---	---	---	---	---	---	1.90	2.78	2.62	2.81	1.74	1.64
15	---	---	---	---	---	---	1.88	2.75	2.61	2.62	1.71	1.62
16	---	---	---	---	---	---	2.28	2.74	2.69	2.51	1.69	1.60
17	---	---	---	---	---	---	2.24	2.71	2.89	2.44	1.67	1.59
18	---	---	---	---	---	---	2.19	2.68	2.60	2.40	1.65	1.70
19	---	---	---	---	---	---	2.36	2.62	2.46	2.35	1.64	1.66
20	---	---	---	---	---	---	2.31	2.58	2.36	2.29	1.63	1.64
21	---	---	---	---	---	---	2.31	2.57	2.32	2.23	1.61	1.70
22	---	---	---	---	---	2.16	2.33	2.58	2.81	2.17	1.60	1.66
23	---	---	---	---	---	2.12	2.36	2.54	2.61	2.12	1.59	1.63
24	---	---	---	---	---	2.09	2.40	2.58	2.92	2.05	1.57	1.60
25	---	---	---	---	---	2.06	2.47	2.56	3.05	1.95	1.55	1.58
26	---	---	---	---	---	2.05	2.53	2.52	2.85	1.92	1.54	1.57
27	---	---	---	---	---	2.00	2.54	2.50	2.72	1.88	1.53	1.55
28	---	---	---	---	---	1.99	2.53	2.49	---	1.90	1.53	1.55
29	---	---	---	---	---	1.99	2.60	2.46	---	1.88	1.52	1.54
30	---	---	---	---	---	1.98	2.60	2.43	2.58	1.85	1.51	1.53
31	---	---	---	---	---	1.98	---	2.44	---	1.82	1.50	---
MEAN	---	---	---	---	---	---	2.17	2.61	---	2.40	1.69	1.54
MAX	---	---	---	---	---	---	2.60	2.93	---	2.91	2.15	1.70
MIN	---	---	---	---	---	---	1.88	2.43	---	1.82	1.50	1.38

06471770 MOCCASIN CREEK AT ABERDEEN, SD—Continued



LOCATION.--Lat 45° 31'08", long 98° 34'37", in SW¹/₄ SW¹/₄ SW¹/₄ sec.29, T.124 N., R.64 W., Brown County, Hydrologic Unit 10160003, on left bank at downstream side of bridge on county road, 1.9 mi downstream of Richmond Lake Dam, 5.9 mi northwest of Aberdeen, and 16.3 mi upstream from mouth.

PERIOD OF RECORD.--October 1999 to current year. Prior to October 1999 (March and April 1997), miscellaneous discharge measurements only made 0.3 mi downstream.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Richmond Lake is formed by a rolled earth dam with a concrete spillway. The reservoir has no control structure and a total storage of 11,500 acre-ft. Satellite data-collection platform and telemeter 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)[illegible]

06471800 FOOT CREEK NEAR ABERDEEN, SD—Continued

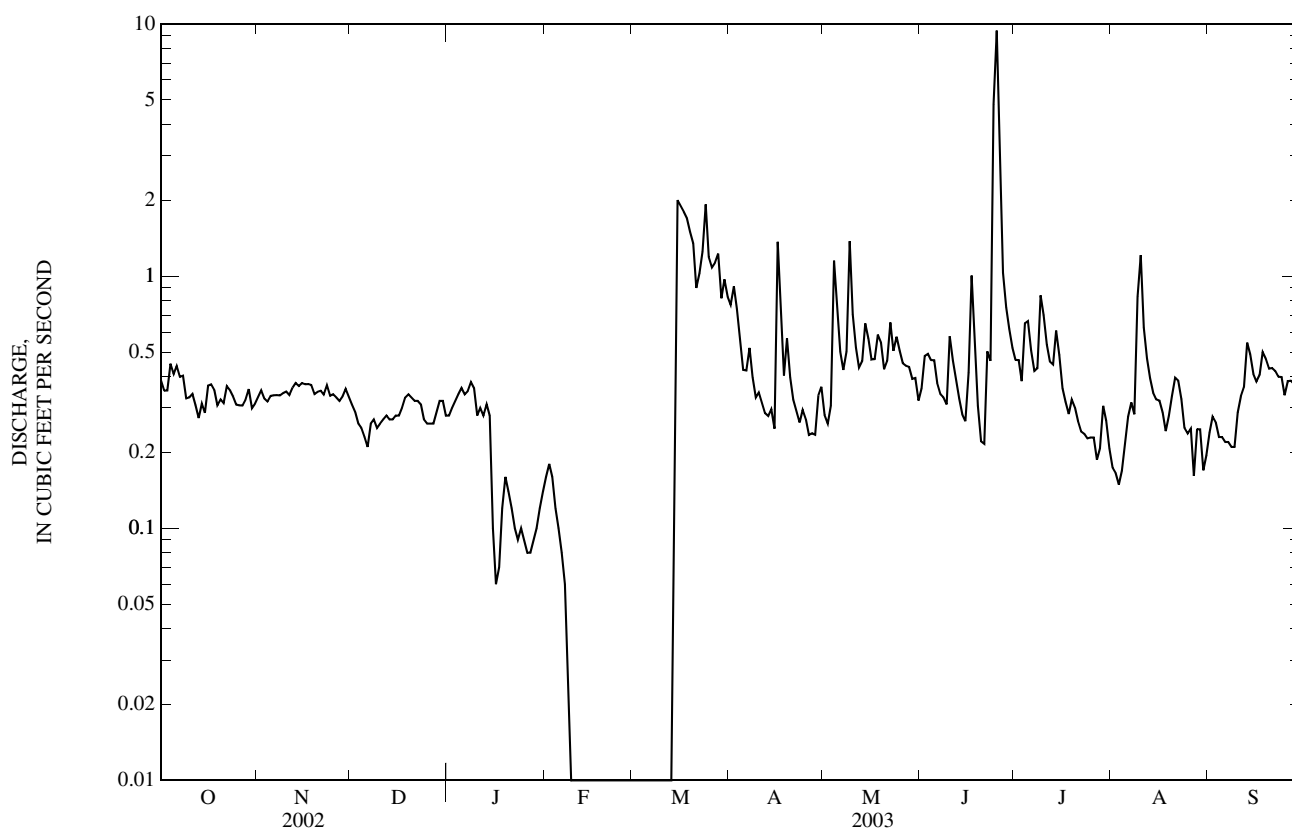
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	109.86		151.87		3.93	
ANNUAL MEAN	0.30		0.42		13.4	
HIGHEST ANNUAL MEAN					0.28	
LOWEST ANNUAL MEAN					452	
HIGHEST DAILY MEAN	1.1	Jul 3	9.4	Jun 25	2001	2002
LOWEST DAILY MEAN	0.00	Jun 30	0.00	Feb 10	Apr 8, 2001	Jun 30, 2002
ANNUAL SEVEN-DAY MINIMUM	0.05	Jun 25	0.00	Feb 10	0.00	Feb 10, 2003
MAXIMUM PEAK FLOW			^b 16	Jun 25	469	Apr 8, 2001
MAXIMUM PEAK STAGE			^c 5.94	Mar 14	8.43	Apr 8, 2001
ANNUAL RUNOFF (AC-FT)	218		301		2,850	
10 PERCENT EXCEEDS	0.45		0.68		1.1	
50 PERCENT EXCEEDS	0.29		0.33		0.42	
90 PERCENT EXCEEDS	0.14		0.07		0.16	

a No flow at times in some years.

b Gage height, 5.44 ft.

c Backwater from ice.

e Estimated.



06472000 JAMES RIVER NEAR STRATFORD, SD

LOCATION.--Lat 45° 14'30", long 98° 23'28", in NE¹/₄ NE¹/₄ NE¹/₄ sec.3, T.120 N., R.63 W., Spink County, Hydrologic Unit 10160003, on right bank 10 ft downstream from bridge, 6.7 mi southwest of Stratford and 9.0 mi upstream from Mud Creek.

DRAINAGE AREA.--8,865 mi², of which 4,005 mi² is probably noncontributing.

PERIOD OF RECORD.--March 1950 to September 1972, October 1976 to September 1977, October 1996 to September 1997 (crest-stage partial record), and October 1999 to current year.

REVISED RECORDS.--WDR SD-00-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,254.29 ft above NGVD of 1929. Prior to May 17, 1950, nonrecording gage at site 20.9 mi upstream at different datum. May 17, 1950, to Aug. 5, 1951, nonrecording gage at site 60 ft upstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity 147,000 acre-ft, since 1973. Occasional backwater from Mud Creek. 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	80	e41	e23	e5.9	e1.3	30	34	449	646	195	55
2	29	82	e40	e23	e6.2	e1.2	29	31	460	645	178	52
3	30	83	e39	e23	e6.2	e1.1	26	30	467	644	169	49
4	30	88	e38	e24	e6.4	e1.1	22	33	471	646	162	47
5	29	91	e38	e24	e6.2	e0.99	18	45	477	647	157	44
6	31	96	e36	e24	e6.2	e0.93	15	82	484	643	156	42
7	32	104	e33	e26	e6.1	e0.88	15	124	490	637	154	40
8	33	107	e30	e26	e5.8	e0.79	16	148	495	632	153	38
9	35	106	e29	e27	e5.5	e0.74	16	172	498	631	153	35
10	37	101	e28	e30	e4.8	e0.69	15	201	500	623	158	33
11	37	97	e28	e34	e4.7	e0.67	14	225	501	615	166	31
12	36	95	e28	e36	e4.2	e0.63	13	246	501	608	168	28
13	35	91	e27	e33	e4.0	e0.62	12	262	501	599	158	28
14	34	87	e26	e29	e3.4	e2.2	12	277	500	596	150	27
15	35	82	e26	e24	e3.2	e5.3	10	290	497	589	143	26
16	38	84	e28	e22	e2.8	e6.8	13	301	494	580	139	24
17	47	86	e29	e19	e2.7	e8.6	33	308	494	571	135	23
18	53	85	e30	e17	e2.7	e11	45	315	491	564	128	22
19	57	82	e32	e15	e2.5	e16	43	321	488	554	121	21
20	61	79	e34	e14	e2.7	e24	50	332	484	541	116	21
21	66	77	e36	e12	e2.5	e31	57	338	478	525	112	21
22	73	76	e39	e11	e2.4	e32	59	346	506	509	109	21
23	81	77	e43	e10	e2.2	e34	57	355	529	491	106	20
24	90	75	e41	e9.9	e2.0	e41	54	368	563	466	104	20
25	97	65	e38	e8.3	e1.7	e51	51	381	606	437	103	20
26	101	e65	e34	e7.5	e1.5	e56	47	394	629	408	98	21
27	101	e60	e31	e7.2	e1.4	e52	42	405	636	378	89	24
28	100	e58	e29	e6.5	e1.3	e50	37	416	638	345	80	36
29	98	e57	e28	e5.6	---	43	37	426	641	301	72	48
30	98	e50	e26	e5.6	---	32	37	431	644	256	64	57
31	88	---	e24	e5.8	---	30	---	442	---	220	58	---
TOTAL	1,741	2,466	1,009	582.4	107.2	537.54	925	8,079	15,612	16,547	4,054	974
MEAN	56.2	82.2	32.5	18.8	3.83	17.3	30.8	261	520	534	131	32.5
MAX	101	107	43	36	6.4	56	59	442	644	647	195	57
MIN	29	50	24	5.6	1.3	0.62	10	30	449	220	58	20
AC-FT	3,450	4,890	2,000	1,160	213	1,070	1,830	16,020	30,970	32,820	8,040	1,930

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1972, 1977, 2000 - 2003, BY WATER YEAR (WY)

MEAN	90.9	72.0	46.7	20.7	11.4	57.8	444	460	281	253	172	87.9
MAX	1,135	792	421	198	83.2	453	2,036	2,283	1,714	1,408	1,254	844
(WY)	(2000)	(2000)	(2001)	(2001)	(2000)	(2000)	(1969)	(2001)	(2001)	(2001)	(2001)	(2001)
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	(1955)	(1953)	(1952)	(1952)	(1951)	(1956)	(1959)	(1959)	(1959)	(1959)	(1959)	(1958)

06472000 JAMES RIVER NEAR STRATFORD, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1951-1972, 1977, 2000-2003	
ANNUAL TOTAL	35,421		52,634.14		^a 167	
ANNUAL MEAN	97.0		144		929	
HIGHEST ANNUAL MEAN					0.000	
LOWEST ANNUAL MEAN					2001	
HIGHEST DAILY MEAN	299	May 14	647	Jul 5	4,940	Apr 20, 1952
LOWEST DAILY MEAN	24	Dec 31	0.62	Mar 13	^b 0.00	Nov 28, 1950
ANNUAL SEVEN-DAY MINIMUM	27	Dec 10	0.72	Mar 7	0.00	Nov 28, 1950
MAXIMUM PEAK FLOW			649	Jul 4	^c 8,400	Apr 6, 1997
MAXIMUM PEAK STAGE			12.78	Jul 4	^d 19.48	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	70,260		104,400		121,000	
10 PERCENT EXCEEDS	199		499		513	
50 PERCENT EXCEEDS	81		44		22	
90 PERCENT EXCEEDS	33		5.6		0.00	

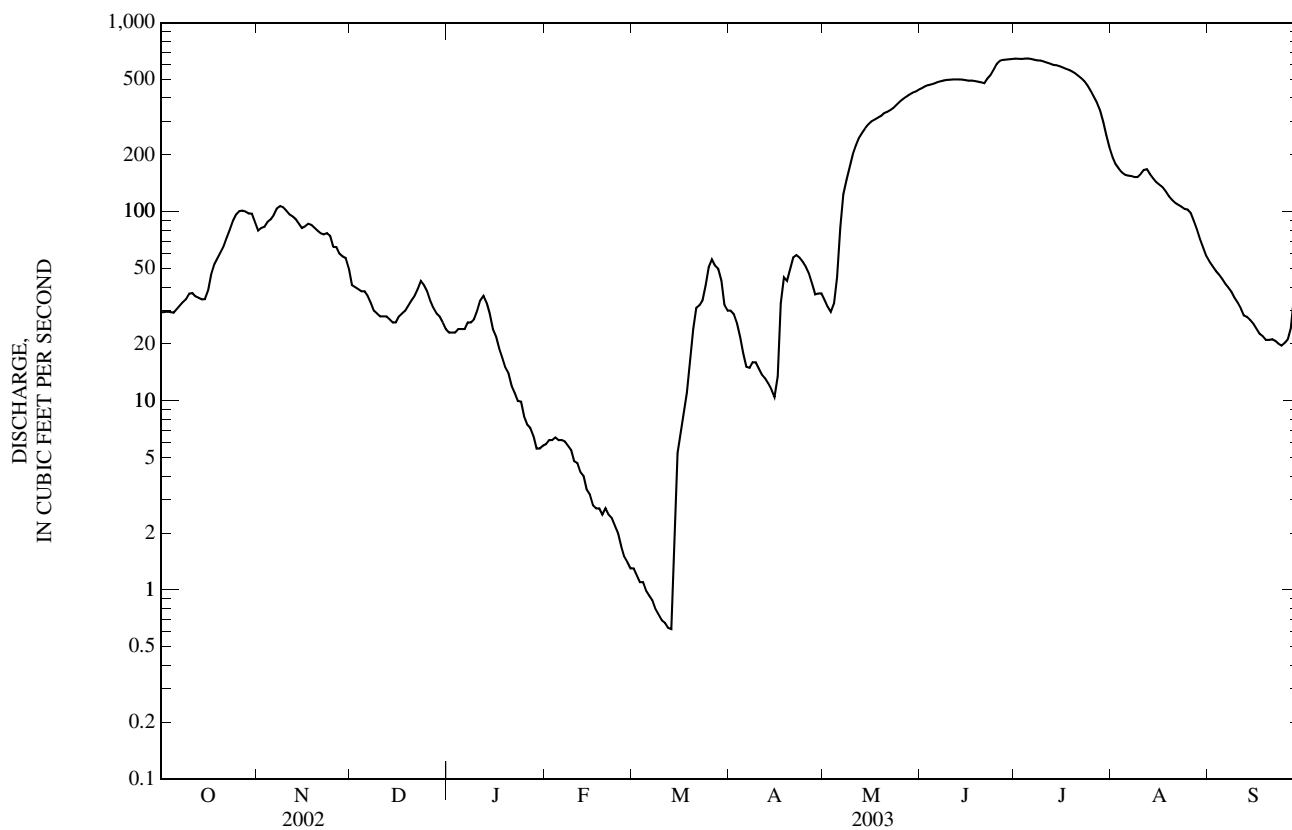
a Median of annual mean discharges, 110 ft³/s.

b No flow for many days in some years.

c Also reflects 1997 partial record year.

d From floodmark.

e Estimated.



06473000 JAMES RIVER AT ASHTON, SD

LOCATION.--Lat 44° 59'54", long 98° 28'50", in NW¹/₄ NW¹/₄ NE¹/₄ sec.36, T.118 N., R.64 W., Spink County, Hydrologic Unit 10160006, on right bank near downstream side of highway bridge, 0.9 mi east of Ashton, 6.1 mi upstream from Snake Creek, and 14.2 mi upstream from Turtle Creek.

DRAINAGE AREA.--9,742 mi², of which 4,069 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1209: 1947. WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,244.4 ft above NGVD of 1929. Prior to Nov. 26, 1957, nonrecording gage at present site and Nov. 26, 1957, to Oct. 7, 1974, water-stage recorder at site 900 ft upstream, all at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. Occasional backwater and reverse flow caused by Snake Creek during most years. 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	98	e55	e27	e8.0	e2.1	44	74	441	667	320	50
2	25	88	e48	e26	e8.0	e2.1	41	70	457	668	283	44
3	24	85	e40	e26	e8.0	e2.0	40	65	463	669	253	40
4	25	82	e40	e26	e7.6	e1.9	38	65	470	675	230	37
5	26	84	e40	e26	e7.0	e1.9	35	65	475	677	213	35
6	25	90	e39	e26	e6.5	e1.8	31	65	479	675	200	33
7	25	95	e38	e27	e6.2	e1.8	e26	78	481	672	193	30
8	27	99	e36	e28	e6.5	e1.7	e22	122	485	673	185	27
9	29	106	e34	e29	e6.5	e1.7	e22	173	489	676	181	25
10	34	108	e33	e29	e6.3	e1.7	e21	202	492	674	179	24
11	36	107	e32	e29	e6.0	e1.6	20	229	495	670	173	23
12	39	103	e31	e29	e5.5	e1.6	19	262	495	667	176	21
13	41	100	e31	e29	e5.0	e1.5	16	289	495	662	180	19
14	40	99	e31	e30	e4.6	e1.5	15	310	494	655	177	17
15	42	96	e31	e33	e4.4	e1.8	16	326	492	653	171	16
16	41	87	e31	e35	e4.0	e2.0	16	340	492	651	164	15
17	42	88	e32	e35	e3.5	e2.8	17	350	493	647	158	15
18	43	89	e33	e32	e3.3	e4.0	19	357	488	643	153	16
19	52	88	e33	e29	e3.3	e5.0	33	359	484	638	147	16
20	59	86	e34	e25	e3.3	e7.0	48	365	483	637	134	14
21	65	84	e35	e22	e3.3	e10	53	371	480	626	125	13
22	70	81	e36	e20	e3.3	e13	63	377	490	616	114	13
23	73	77	e38	e18	e3.3	e18	72	382	500	605	105	13
24	78	76	e40	e17	e3.1	e30	80	388	528	590	102	12
25	84	64	e40	e15	e2.9	e35	89	393	575	569	100	12
26	90	e65	e40	e13	e2.6	43	95	401	619	543	95	11
27	95	e63	e37	e11	e2.4	53	93	408	649	511	90	12
28	101	e60	e35	e10	e2.2	61	88	416	662	479	82	12
29	105	e58	e33	e9.8	---	54	83	424	665	447	75	15
30	103	e58	e32	e9.0	---	51	78	428	666	410	65	26
31	99	---	e29	e8.2	---	48	---	435	---	363	57	---
TOTAL	1,663	2,564	1,117	729.0	136.6	463.5	1,333	8,589	15,477	19,008	4,880	656
MEAN	53.6	85.5	36.0	23.5	4.88	15.0	44.4	277	516	613	157	21.9
MAX	105	108	55	35	8.0	61	95	435	666	677	320	50
MIN	24	58	29	8.2	2.2	1.5	15	65	441	363	57	11
AC-FT	3,300	5,090	2,220	1,450	271	919	2,640	17,040	30,700	37,700	9,680	1,300

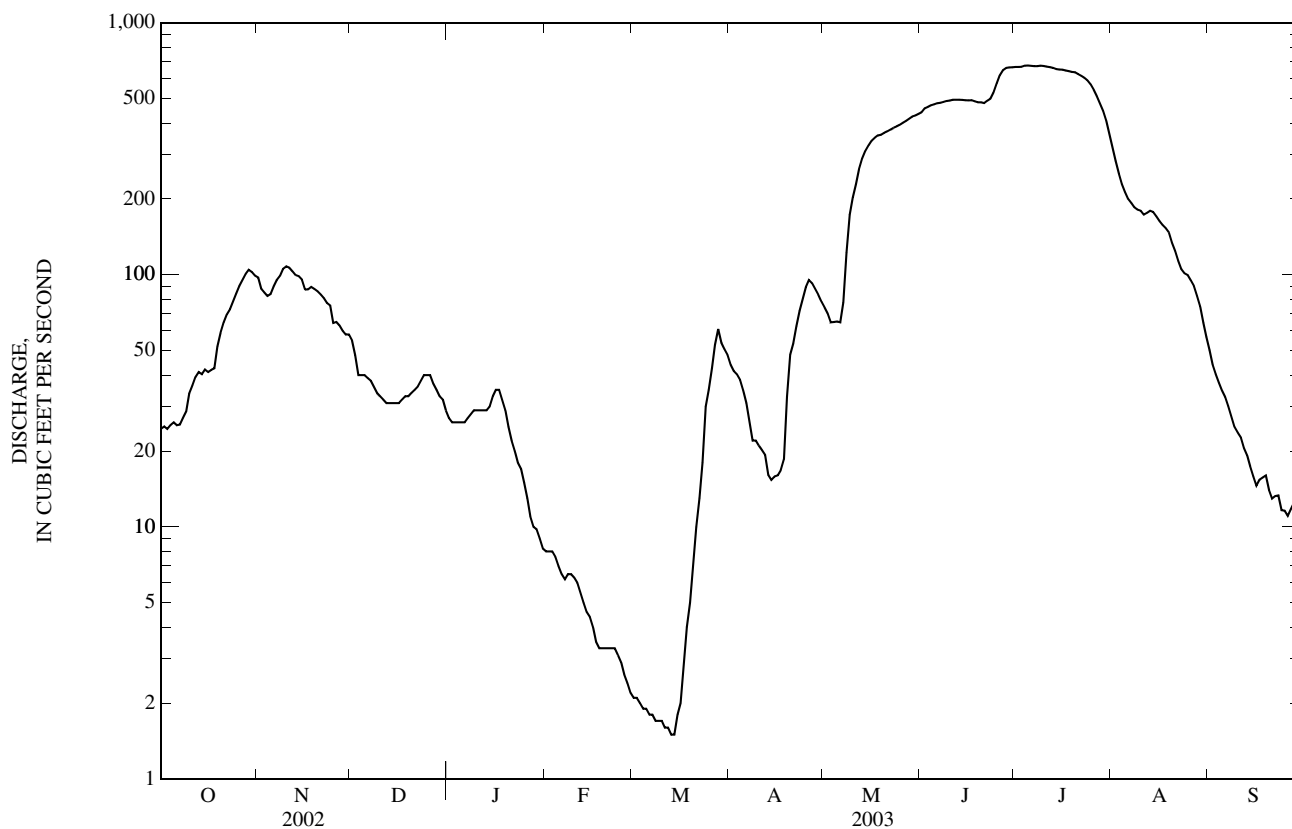
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2003, BY WATER YEAR (WY)

MEAN	133	127	78.0	29.8	18.7	110	639	731	489	360	279	174
MAX	1,289	1,026	735	303	190	879	7,153	4,133	2,440	1,746	1,422	1,331
(WY)	(2000)	(2000)	(1994)	(1999)	(1999)	(1995)	(1997)	(1997)	(1950)	(1997)	(1997)	(1999)
MIN	0.000	0.000	0.000	0.000	0.000	-338	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	(1950)	(1950)	(1946)	(1950)	(1948)	(1997)	(1959)	(1959)	(1959)	(1959)	(1959)	(1958)

06473000 JAMES RIVER AT ASHTON, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1946 - 2003	
ANNUAL TOTAL	35,937		56,616.1		^a 265	
ANNUAL MEAN	98.5		155		1,530	
HIGHEST ANNUAL MEAN					0.000	
LOWEST ANNUAL MEAN					9,100	
HIGHEST DAILY MEAN	321	May 15	677	Jul 5	^b 8,400	Apr 23, 1997
LOWEST DAILY MEAN	20	Sep 25	1.5	Mar 13	^b 1,960	Mar 31, 1997
ANNUAL SEVEN-DAY MINIMUM	22	Sep 24	1.6	Mar 8	^c 9,150	Mar 26, 1997
MAXIMUM PEAK FLOW			680	Jul 9	^d 26.64	Apr 23, 1997
MAXIMUM PEAK STAGE			8.53	Jul 9	191,900	
ANNUAL RUNOFF (AC-FT)	71,280		112,300		817	
10 PERCENT EXCEEDS	209		495		38	
50 PERCENT EXCEEDS	82		48		0.00	
90 PERCENT EXCEEDS	34		5.8			

- a Median of annual mean discharges, 150 ft³/s.
b Backwater from Snake Creek.
c Gage height, 25.03 ft, backwater.
d Backwater from Snake Creek, from floodmark.
e Estimated.
f Backwater from Snake Creek, from floodmark.



06475000 JAMES RIVER NEAR REDFIELD, SD

LOCATION.--Lat 44° 54' 38", long 98° 28' 18", in NW¹/₄ NW¹/₄ NW¹/₄ sec. 31, T. 117 N., R. 63 W., Spink County, Hydrologic Unit 10160006, on left bank near downstream side of county highway bridge, 2.8 mi northeast of Redfield, and 0.7 mi downstream from Turtle Creek.

DRAINAGE AREA.--13,911 mi², of which about 4,118 mi² are probably noncontributing.

PERIOD OF RECORD.--March 1950 to current year. Crest-stage partial record, October 1990 to September 1997.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,239.50 ft above NGVD of 1929. From March 1950 to July 25, 1951, nonrecording gage. Daily discharge from July 26, 1951, to Sept. 30, 1981, water-stage recorder. Both gages described above at site 4.5 mi downstream from present site and at different datum. Daily discharge from Oct. 1, 1981, to Oct. 8, 1986, water-stage recorder at site 0.6 mi downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. Flow below 100 ft³/s for water years 1964-79 may be unreliable because of wind effect. 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	93	e61	e31	e11	e4.1	59	78	447	725	334	71
2	24	97	e59	e30	e11	e4.1	57	77	466	727	287	64
3	25	86	e53	e29	e11	e3.7	53	72	477	724	251	57
4	27	82	e48	e29	e10	e3.7	50	77	484	732	226	53
5	27	81	e45	e29	e10	e3.6	44	78	491	734	211	50
6	27	83	e44	e28	e9.8	e3.6	39	76	494	734	196	47
7	26	87	e43	e29	e9.5	e3.3	34	79	493	728	186	44
8	27	92	e41	e29	e9.6	e3.1	30	101	497	730	181	40
9	27	97	e41	e29	e9.2	e3.1	27	157	503	735	180	37
10	29	101	e38	e29	e9.2	e3.1	25	187	507	724	180	35
11	30	102	e37	e29	e9.2	e3.1	22	209	508	718	171	33
12	32	100	e37	e29	e9.0	e2.9	20	249	511	715	169	31
13	34	96	e37	e28	e8.7	e3.6	17	285	510	714	171	29
14	34	94	e36	e28	e8.2	e8.6	16	314	509	711	171	27
15	34	92	e36	e28	e7.2	e13	17	334	507	700	168	25
16	34	87	e37	e29	e6.6	e15	21	350	507	699	163	23
17	33	83	e37	e32	e6.3	e17	19	362	508	696	156	21
18	34	81	e38	e34	e5.8	e19	21	369	500	688	151	20
19	37	83	e39	e34	e6.3	e23	28	369	494	683	147	19
20	44	85	e40	e34	e5.8	e24	45	365	495	684	142	19
21	50	83	e41	e32	e5.5	e24	60	372	500	671	135	17
22	56	80	e43	e29	e5.5	e26	67	387	519	659	127	15
23	60	77	e45	e26	e5.5	e30	73	392	515	649	120	15
24	66	75	e46	e23	e5.5	e36	82	399	544	637	119	14
25	72	e69	e45	e20	e5.3	e44	90	404	607	619	117	13
26	80	e68	e45	e17	e4.5	e52	91	408	651	585	114	13
27	89	e66	e43	e16	e4.4	e58	91	415	692	548	110	13
28	94	e63	e41	e14	e4.2	e63	87	423	717	513	105	12
29	100	e62	e37	e13	---	e63	85	429	723	482	98	13
30	99	e61	e35	e13	---	61	81	435	724	446	89	e15
31	94	---	e33	e12	---	60	---	436	---	390	80	---
TOTAL	1,468	2,506	1,301	812	213.8	681.6	1,451	8,688	16,100	20,500	5,055	885
MEAN	47.4	83.5	42.0	26.2	7.64	22.0	48.4	280	537	661	163	29.5
MAX	100	102	61	34	11	63	91	436	724	735	334	71
MIN	23	61	33	12	4.2	2.9	16	72	447	390	80	12
AC-FT	2,910	4,970	2,580	1,610	424	1,350	2,880	17,230	31,930	40,660	10,030	1,760

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2003, BY WATER YEAR (WY)

	123	124	78.7	33.0	23.7	205	774	705	428	323	247	138
MEAN	1,368	1,353	971	411	272	1,151	4,812	3,408	2,311	1,736	1,481	1,606
(WY)	(2000)	(1999)	(1999)	(1999)	(1999)	(1986)	(1969)	(2001)	(1999)	(1999)	(1999)	(1999)
MIN	0.000	0.000	0.000	0.000	0.000	0.000	1.36	0.46	0.077	0.000	0.000	0.000
(WY)	(1955)	(1956)	(1956)	(1956)	(1956)	(1975)	(1959)	(1959)	(1977)	(1959)	(1959)	(1958)

06475000 JAMES RIVER NEAR REDFIELD, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1951 - 2003	
ANNUAL TOTAL	39,216		59,661.4		^a 268	
ANNUAL MEAN	107		163		1,294	
HIGHEST ANNUAL MEAN					0.45	
LOWEST ANNUAL MEAN					7,280	
HIGHEST DAILY MEAN	358	May 15	735	Jul 9	1999	
LOWEST DAILY MEAN	18	Sep 26	2.9	Mar 12	1959	
ANNUAL SEVEN-DAY MINIMUM	20	Sep 24	3.2	Mar 6	Nov 8, 1950	
MAXIMUM PEAK FLOW			745	Jul 9	^c 17,000	
MAXIMUM PEAK STAGE			7.31	Jul 9	^d 31.10	
ANNUAL RUNOFF (AC-FT)	77,780		118,300		193,900	
10 PERCENT EXCEEDS	221		514		824	
50 PERCENT EXCEEDS	89		57		40	
90 PERCENT EXCEEDS	35		9.7		0.00	

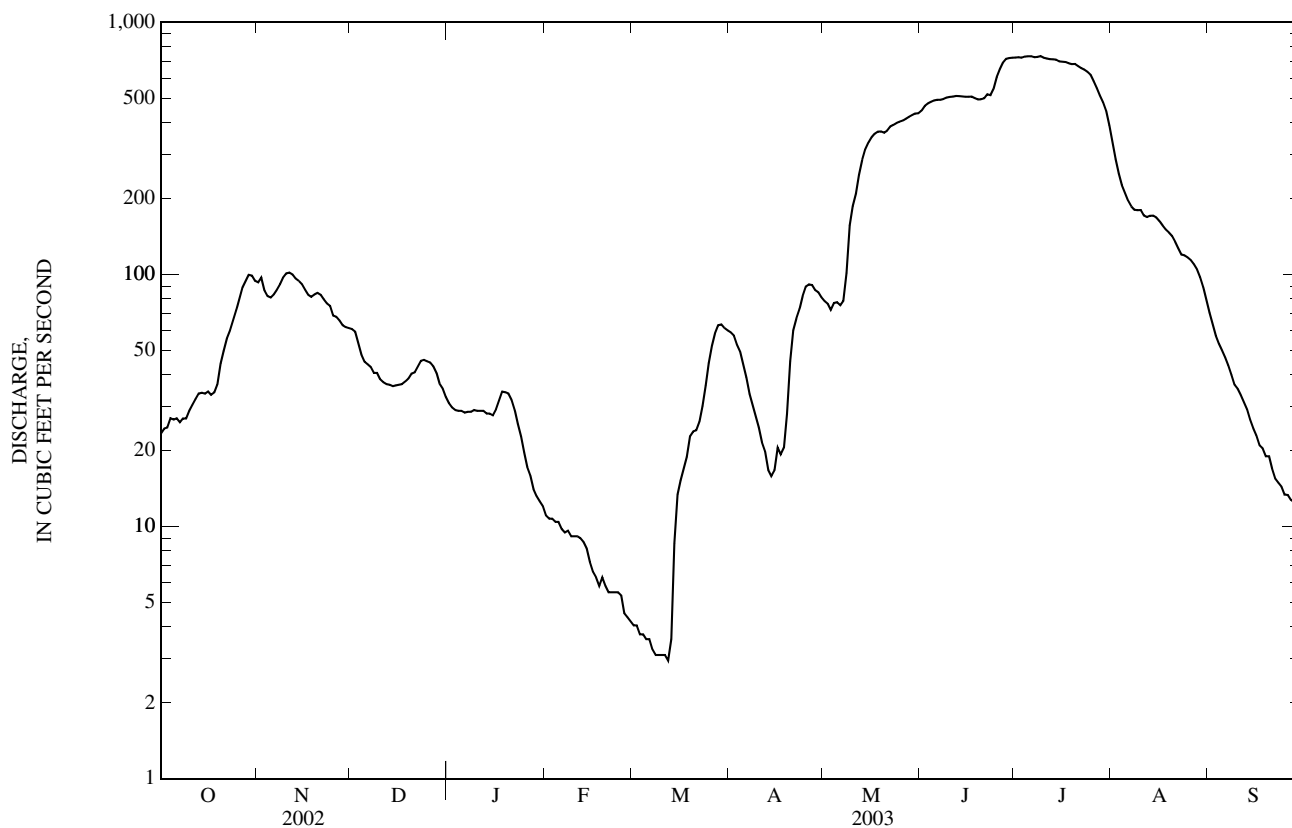
a Median of annual mean discharges, 160 ft³/s.

b No flow for many days in some years.

c Gage height, 29.92 ft.

d Backwater from ice, from floodmark.

e Estimated.



06476000 JAMES RIVER AT HURON, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1929-1932, 1944-2003	
ANNUAL TOTAL	43,372		63,344.7		^a 418	
ANNUAL MEAN	119		174		2,915	
HIGHEST ANNUAL MEAN					0.51	
LOWEST ANNUAL MEAN					22,800	
HIGHEST DAILY MEAN	437	May 23	795	Jul 3	^b 0.00	Apr 6, 1997
LOWEST DAILY MEAN	23	Aug 2	9.7	Mar 26	^c 0.00	Oct 12, 1944
ANNUAL SEVEN-DAY MINIMUM	32	Aug 1	20	Mar 23	^c 0.00	Sep 29, 1945
MAXIMUM PEAK FLOW			^d 827	Jun 25	23,400	Apr 6, 1997
MAXIMUM PEAK STAGE			^d 9.92	Jun 25	^f 21.28	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	86,030		125,600		303,000	
10 PERCENT EXCEEDS	240		521		^c 1,150	
50 PERCENT EXCEEDS	97		67		^c 62	
90 PERCENT EXCEEDS	42		34		^c 0.00	

a Median of annual mean discharges, 200 ft³/s.

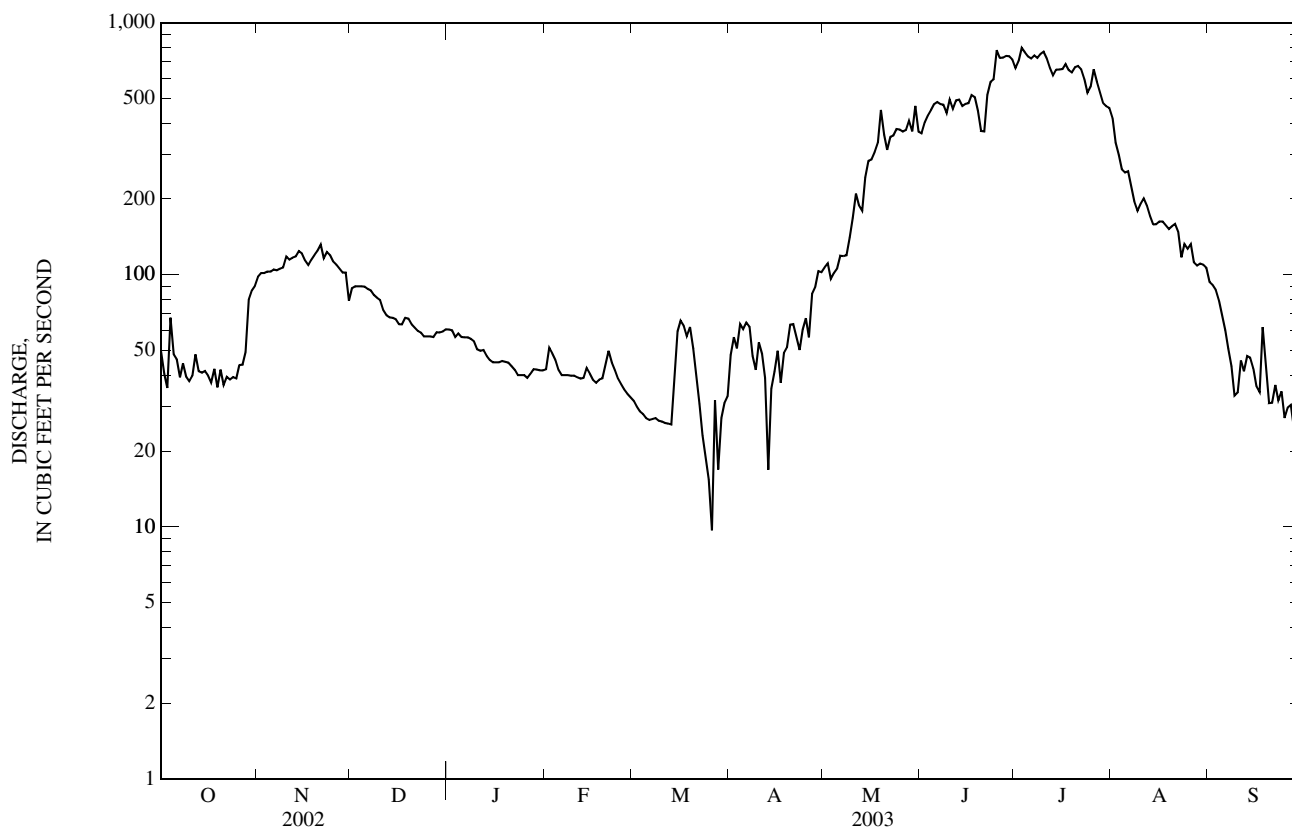
b No flow for long periods in most years.

c For water years 1944-2003 only.

d Also July 3.

e Estimated.

f Backwater, from floodmark.



06477000 JAMES RIVER NEAR FORESTBURG, SD

LOCATION.--Lat 43° 58' 26", long 98° 04' 14", in SW¹/₄ SW¹/₄ NW¹/₄ sec.20, T.106 N., R.60 W., Sanborn County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 3.8 mi southeast of Forestburg, 5.4 mi downstream from Chicago and North Western Railway Co. bridge, and 6.1 mi downstream from Sand Creek.

DRAINAGE AREA.--17,590 mi², of which about 4,148 mi² is probably noncontributing.

PERIOD OF RECORD.--March 1950 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,208.34 ft above NGVD of 1929 (Bureau of Reclamation bench mark). Prior to Sept. 5, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. 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.--Floods in March 1920 and March 1922 reached a stage of about 18 ft, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	61	e78	e58	e46	e39	26	95	448	694	494	101
2	45	68	e76	e58	e47	e38	34	99	421	674	461	96
3	45	90	e80	e57	e49	e37	38	99	428	685	421	92
4	59	95	e82	e57	e51	e36	45	101	452	727	376	88
5	63	88	e80	e56	e49	e35	50	107	478	741	334	81
6	66	91	e78	e56	e47	e35	51	114	501	711	300	76
7	62	91	e76	e56	e46	e35	56	109	510	692	278	71
8	50	92	e75	e56	e46	e35	57	112	508	703	252	64
9	46	94	e73	e55	e45	e35	54	134	505	718	229	56
10	44	95	e71	e54	e45	e36	49	154	512	715	219	60
11	41	97	e69	e53	e44	e42	48	164	507	718	212	56
12	40	96	e67	e52	e44	e48	48	180	511	696	206	61
13	44	99	e64	e50	e44	e55	41	199	503	668	197	56
14	41	101	e63	e48	e45	e75	37	197	518	637	181	52
15	42	103	e63	e46	e45	e90	39	213	503	650	166	50
16	43	105	e62	e46	e45	e100	48	264	490	683	158	48
17	42	103	e61	e47	e45	110	62	300	511	660	153	46
18	43	103	e61	e47	e44	111	64	313	534	655	149	45
19	41	103	e62	e48	e45	98	63	346	525	649	147	53
20	40	102	e62	e48	e46	77	65	403	484	637	147	59
21	39	105	e61	e47	e45	64	69	419	432	630	145	52
22	41	105	e59	e47	e40	54	65	380	411	631	144	47
23	41	104	e58	e47	e35	46	62	364	473	622	138	45
24	40	e102	e58	e46	e35	40	60	383	575	590	134	39
25	39	e83	e57	e46	e38	36	62	395	641	556	126	40
26	38	e90	e57	e46	e40	30	61	405	729	574	122	35
27	39	e93	e57	e45	e40	24	57	405	724	612	119	34
28	40	e90	e57	e45	e40	24	65	406	700	589	113	36
29	44	e88	e57	e45	---	25	74	419	701	549	111	33
30	54	e82	e57	e46	---	25	84	422	704	522	105	32
31	60	---	e58	e46	---	21	---	436	---	511	103	---
TOTAL	1,418	2,819	2,039	1,554	1,231	1,556	1,634	8,137	15,939	20,099	6,440	1,704
MEAN	45.7	94.0	65.8	50.1	44.0	50.2	54.5	262	531	648	208	56.8
MAX	66	105	82	58	51	111	84	436	729	741	494	101
MIN	38	61	57	45	35	21	26	95	411	511	103	32
AC-FT	2,810	5,590	4,040	3,080	2,440	3,090	3,240	16,140	31,620	39,870	12,770	3,380

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2003, BY WATER YEAR (WY)

MEAN	185	177	122	61.6	64.1	575	1,654	1,256	830	513	394	244
MAX	1,528	1,759	1,384	528	550	3,735	17,560	9,047	5,395	2,196	2,599	1,792
(WY)	(2000)	(1999)	(1999)	(1999)	(1996)	(1994)	(1997)	(1995)	(1995)	(1993)	(1993)	(1999)
MIN	0.000	0.000	0.000	0.000	0.000	9.75	2.39	5.61	0.39	0.002	0.004	0.000
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1990)	(1990)	(1959)	(1981)	(1981)	(1976)	(1976)

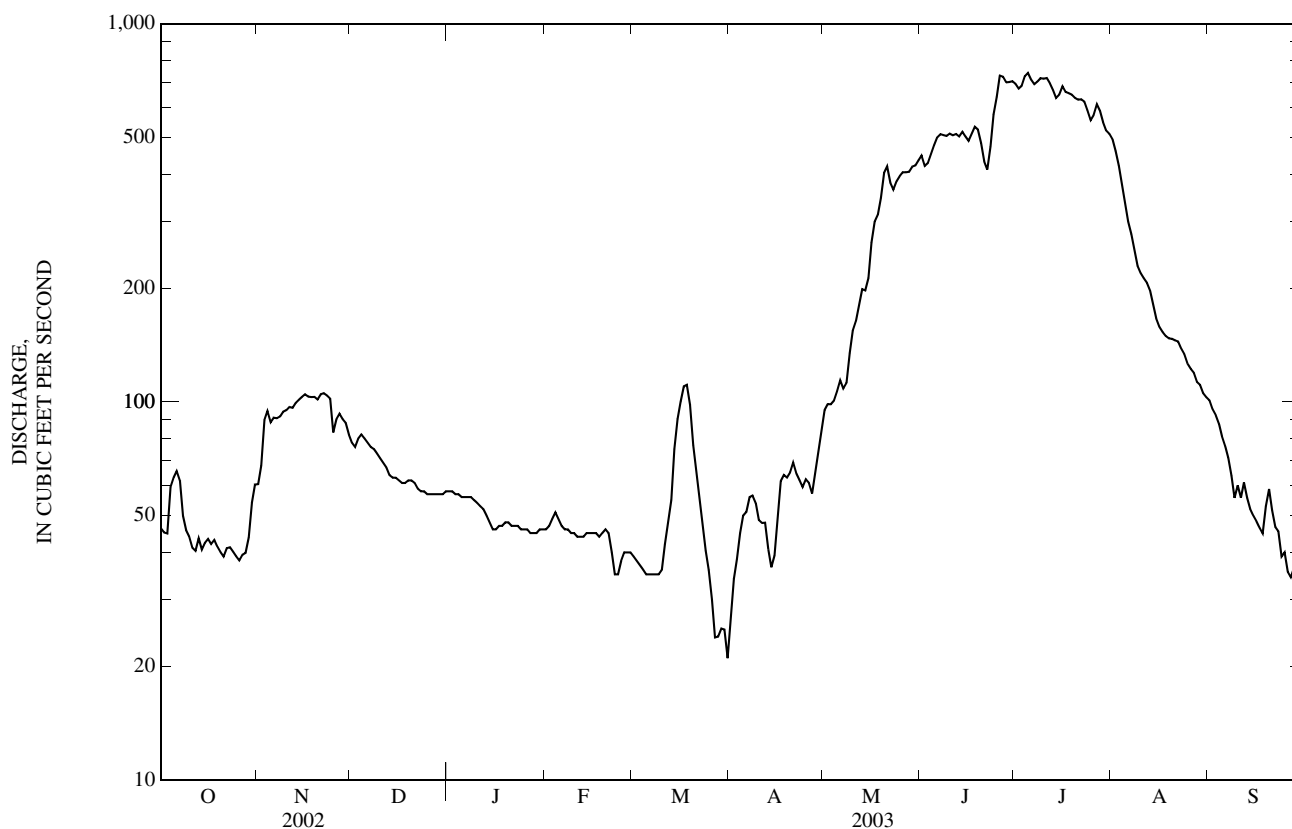
06477000 JAMES RIVER NEAR FORESTBURG, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1951 - 2003	
ANNUAL TOTAL	53,608		64,570		^a 507	
ANNUAL MEAN	147		177		3,054	
HIGHEST ANNUAL MEAN					4.75	
LOWEST ANNUAL MEAN					25,100	
HIGHEST DAILY MEAN	422	Apr 1	741	Jul 5	0.00	Apr 6, 1997
LOWEST DAILY MEAN	29	Aug 3	21	Mar 31	0.00	Jul 10, 1959
ANNUAL SEVEN-DAY MINIMUM	34	Jul 28	25	Mar 26	0.00	Aug 9, 1959
MAXIMUM PEAK FLOW			751	Jul 5	25,600	Apr 6, 1997
MAXIMUM PEAK STAGE			6.71	Jul 5	20.61	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	106,300		128,100		367,400	
10 PERCENT EXCEEDS	310		540		1,350	
50 PERCENT EXCEEDS	118		65		84	
90 PERCENT EXCEEDS	44		40		2.6	

a Median of annual mean discharges, 230 ft³/s.

b No flow at times in some years.

c Estimated.



06477500 FIRESTEEL CREEK NEAR MOUNT VERNON, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1956 - 2003	
ANNUAL TOTAL	684.11		134.08		^a 32.5	
ANNUAL MEAN	1.87		0.37		203	
HIGHEST ANNUAL MEAN					0.033	
LOWEST ANNUAL MEAN					1962	
HIGHEST DAILY MEAN	47	Mar 30	9.6	Mar 16	5,820	Apr 4, 1969
LOWEST DAILY MEAN	0.00	Jul 5	0.00	Sep 7	^b 0.00	Oct 1, 1955
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 5	0.01	Sep 3	0.00	Oct 8, 1955
MAXIMUM PEAK FLOW			11	Mar 16	^c 6,610	Apr 4, 1969
MAXIMUM PEAK STAGE			2.79	Mar 16	^d 17.12	Apr 3, 1969
ANNUAL RUNOFF (AC-FT)	1,360		266		23,530	
10 PERCENT EXCEEDS	3.5		0.72		29	
50 PERCENT EXCEEDS	0.28		0.11		0.25	
90 PERCENT EXCEEDS	0.03		0.05		0.00	

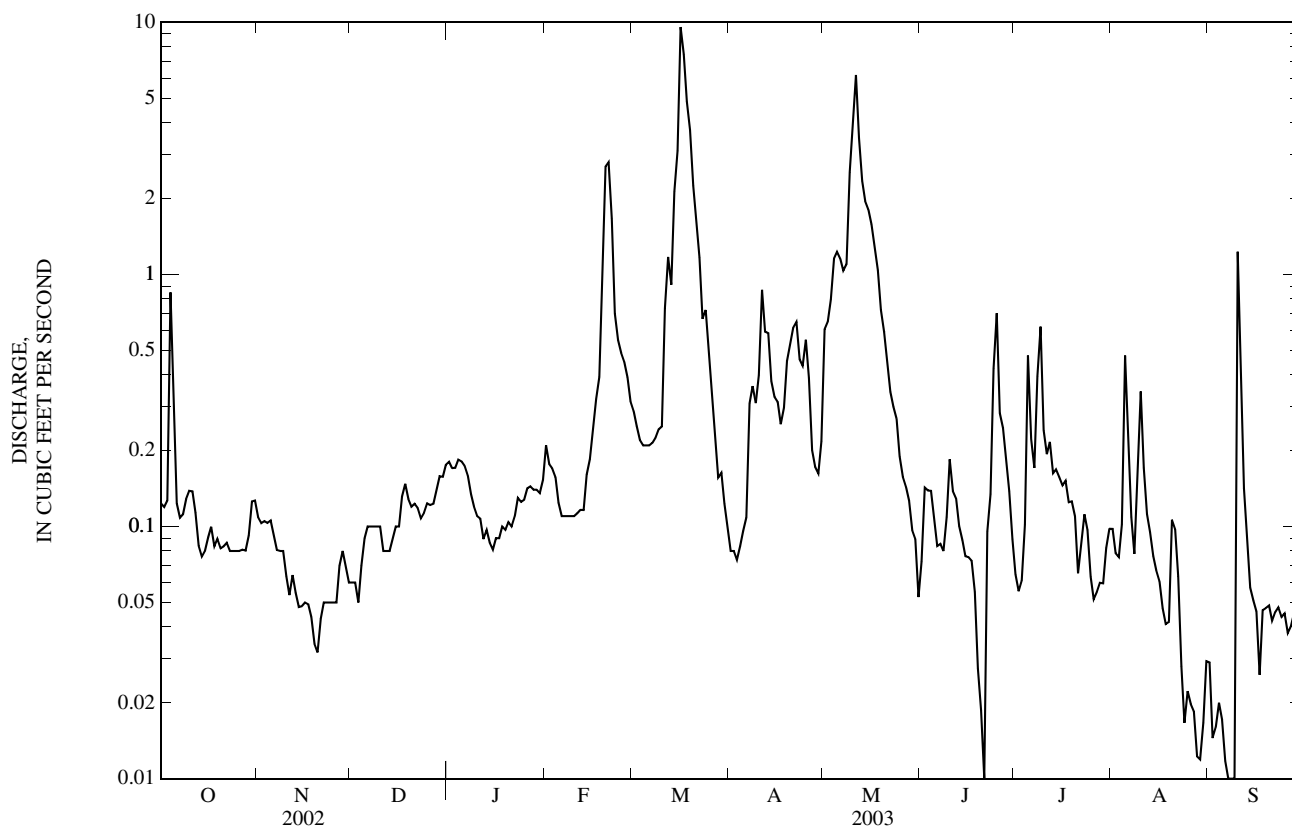
a Median of annual mean discharges, 11 ft³/s.

b No flow for many days in most years.

c Gage height, 15.34 ft.

d Backwater from ice.

e Estimated.



06478000 JAMES RIVER NEAR MITCHELL, SD

LOCATION.--Lat 43° 39' 32", long 97° 55' 08", in NW¹/₄ NE¹/₄ NW¹/₄ (revised) sec.9, T.102 N., R.59 W., Hanson County, Hydrologic Unit 10160011, on right bank at downstream side of bridge on county road, 6.5 mi southeast of Mitchell, 6.9 mi downstream of Firesteel Creek, and 2.3 mi upstream of Enemy Creek.

DRAINAGE AREA.--To be determined.

PERIOD OF RECORD.--July 1953 to September 1958 (published as "near Alexandria") and August 1965 to September 1972. Miscellaneous peak discharge measurement in 1995, partial-record crest-stage gage in 1997, and miscellaneous discharge measurements in 2001. October 2001 to present.

GAGE.--Water-stage recorder. Elevation of gage is 1,217 ft above NGVD of 1929, from topographic map. Miscellaneous discharge measurements made in 2001 at present site and datum. Miscellaneous discharge measurements made in 1995 and 1997 at datum 1,197.93 ft above NGVD of 1929 at site 7.2 mi upstream (SD Hwy 38). August 1965 to September 1972 at datum 1,198.00 ft above NGVD of 1929 (South Dakota Department of Transportation bench mark) at site 6.7 mi upstream (Interstate I-90), and was nonrecording gage Aug. 17 to Dec. 7, 1965. July 1953 to September 1958 nonrecording gage at datum 1,195.03 ft above NGVD of 1929 at site 3.8 mi downstream.

REMARKS.--Records good. Only daily discharges above 500 ft³/s published because flows below are unreliable due to wind effect. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. 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, 28,000 ft³/s, Apr. 7, 1997, gage height, 23.14 ft, site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge at current site, 24,700 ft³/s, Apr. 11, 2001, from rating curve extended above 20,100 ft³/s, gage height, 25.33 ft, from high-water mark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 877 ft³/s, July 6, gage height, 13.19 ft (also July 10, 11).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

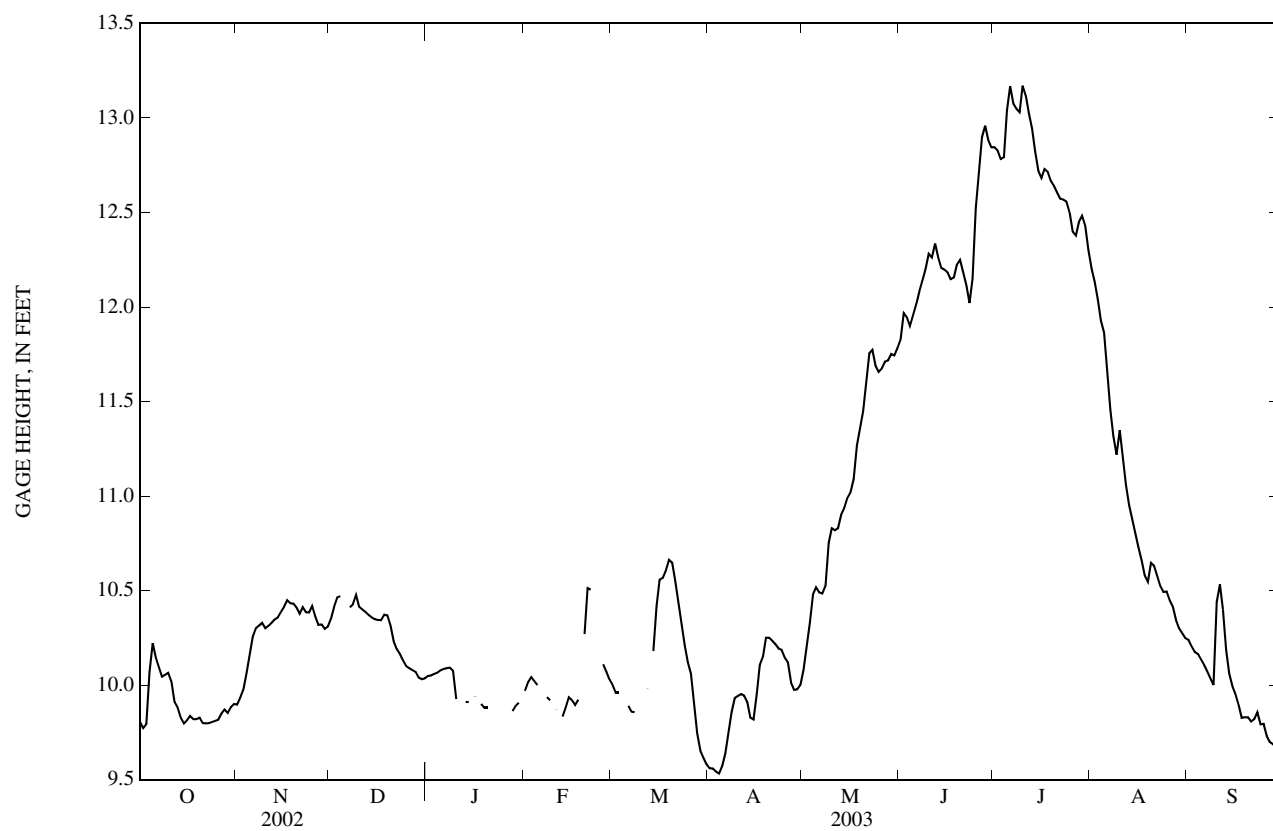
June	2	511	June	16	567	June	29	785	July	12	827	July	25	658
	3	505		17	557		30	772		13	803		26	629
	5	509		18	560	July	1	772		14	764		27	622
	6	522		19	578		2	765		15	730		28	644
	7	541		20	585		3	751		16	717		29	654
	8	555		21	567		4	753		17	732		30	638
	9	573		22	549		5	832		18	727		31	600
	10	595		23	525		6	870		19	712	Aug.	1	572
	11	589		24	559		7	842		20	703		2	554
	12	610		25	666		8	834		21	692		3	529
	13	590		26	729		9	829		22	681		4	501
	14	574		27	789		10	871		23	680			
	15	571		28	808		11	855		24	676			

06478000 JAMES RIVER NEAR MITCHELL, SD—Continued

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.80	9.90	10.35	10.05	9.97	10.00	9.56	10.08	11.83	12.84	12.20	10.24
2	9.77	9.93	10.41	10.05	10.02	9.96	9.56	10.21	11.97	12.83	12.13	10.20
3	9.79	9.98	10.46	10.06	10.04	9.96	9.54	10.33	11.94	12.78	12.04	10.18
4	10.07	10.06	10.47	10.07	10.02	---	9.53	10.48	11.90	12.79	11.93	10.16
5	10.22	10.16	---	10.08	10.00	---	9.57	10.52	11.96	13.04	11.86	10.14
6	10.15	10.25	---	10.09	---	9.89	9.64	10.49	12.01	13.17	11.65	10.11
7	10.09	10.30	10.41	10.09	---	9.86	9.76	10.48	12.08	13.07	11.46	10.07
8	10.05	10.32	10.43	10.09	9.94	9.86	9.86	10.52	12.14	13.05	11.32	10.04
9	10.05	10.33	10.48	10.08	9.92	---	9.93	10.75	12.20	13.03	11.22	10.00
10	10.06	10.30	10.41	9.93	---	---	9.94	10.83	12.28	13.17	11.35	10.44
11	10.02	10.31	10.40	---	9.87	---	9.95	10.82	12.26	13.12	11.21	10.53
12	9.91	10.33	10.39	---	---	9.98	9.95	10.83	12.34	13.02	11.06	10.40
13	9.88	10.35	10.37	9.91	9.83	---	9.91	10.90	12.26	12.94	10.95	10.18
14	9.83	10.36	10.36	9.91	9.88	10.18	9.83	10.94	12.21	12.82	10.88	10.06
15	9.80	10.39	10.35	---	9.94	10.42	9.82	10.99	12.20	12.72	10.81	9.99
16	9.81	10.41	10.34	9.94	9.92	10.56	9.95	11.02	12.18	12.68	10.73	9.95
17	9.84	10.45	10.34	---	9.90	10.57	10.11	11.09	12.15	12.73	10.66	9.89
18	9.82	10.43	10.37	9.90	9.92	10.60	10.15	11.27	12.16	12.72	10.58	9.83
19	9.82	10.43	10.37	9.88	---	10.66	10.25	11.36	12.22	12.67	10.55	9.83
20	9.83	10.41	10.32	9.88	10.27	10.65	10.25	11.45	12.25	12.64	10.65	9.83
21	9.80	10.38	10.23	---	10.51	10.55	10.24	11.59	12.18	12.61	10.63	9.81
22	9.80	10.41	10.19	---	10.50	10.43	10.22	11.76	12.12	12.57	10.58	9.82
23	9.80	10.38	10.16	---	---	10.32	10.19	11.77	12.02	12.57	10.52	9.86
24	9.80	10.38	10.13	---	---	10.21	10.19	11.69	12.15	12.56	10.49	9.79
25	9.81	10.42	10.10	---	---	10.12	10.14	11.66	12.52	12.50	10.49	9.80
26	9.82	10.36	10.09	---	10.11	10.06	10.12	11.67	12.72	12.40	10.45	9.73
27	9.85	10.32	10.08	---	10.07	9.91	10.01	11.71	12.90	12.38	10.41	9.70
28	9.87	10.32	10.07	9.86	10.03	9.74	9.98	11.72	12.96	12.45	10.34	9.69
29	9.85	10.30	10.04	9.89	---	9.65	9.98	11.75	12.88	12.48	10.30	9.66
30	9.88	10.31	10.03	9.91	---	9.62	10.00	11.74	12.84	12.43	10.27	9.64
31	9.90	---	10.04	---	---	9.58	---	11.78	---	12.30	10.25	---
MEAN	9.90	10.30	---	---	---	---	9.94	11.10	12.26	12.74	10.97	9.99
MAX	10.22	10.45	---	---	---	---	10.25	11.78	12.96	13.17	12.20	10.53
MIN	9.77	9.90	---	---	---	---	9.53	10.08	11.83	12.30	10.25	9.64

06478000 JAMES RIVER NEAR MITCHELL, SD—Continued



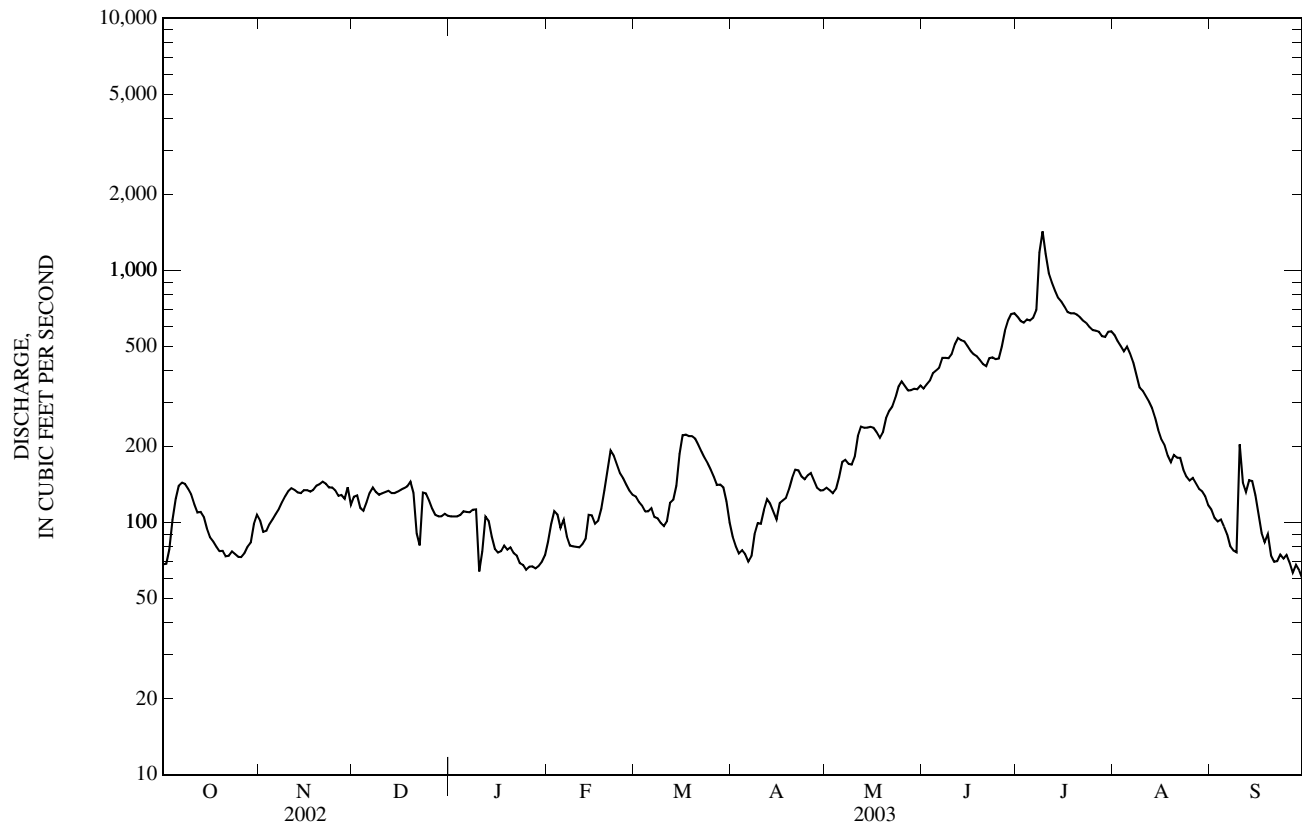
THIS PAGE IS INTENTIONALLY BLANK

06478500 JAMES RIVER NEAR SCOTLAND, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1929 - 2003	
ANNUAL TOTAL	71,719		80,160		^a 610	
ANNUAL MEAN	196		220		3,996	
HIGHEST ANNUAL MEAN					13.8	
LOWEST ANNUAL MEAN					27,800	
HIGHEST DAILY MEAN	921	Apr 1	1,430	Jul 9	0.00	Apr 9, 1997
LOWEST DAILY MEAN	29	Aug 2	60	Sep 30	0.00	Jul 28, 1934
ANNUAL SEVEN-DAY MINIMUM	38	Aug 1	67	Jan 23	0.00	Jul 28, 1934
MAXIMUM PEAK FLOW			1,640	Jul 8	29,400	Jun 23, 1984
MAXIMUM PEAK STAGE			8.53	Jul 8	20.45	Jun 23, 1984
ANNUAL RUNOFF (AC-FT)	142,300		159,000		442,000	
10 PERCENT EXCEEDS	365		541		1,560	
50 PERCENT EXCEEDS	142		134		100	
90 PERCENT EXCEEDS	73		76		9.0	

a Median of annual mean discharges, 270 ft³/s.

b No flow for many days in some years.



06478515 MISSOURI RIVER NEAR GAYVILLE, SD

LOCATION.--Lat 42° 51'01", long 97° 13'12", in SW¹/₄ NW¹/₄ 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.

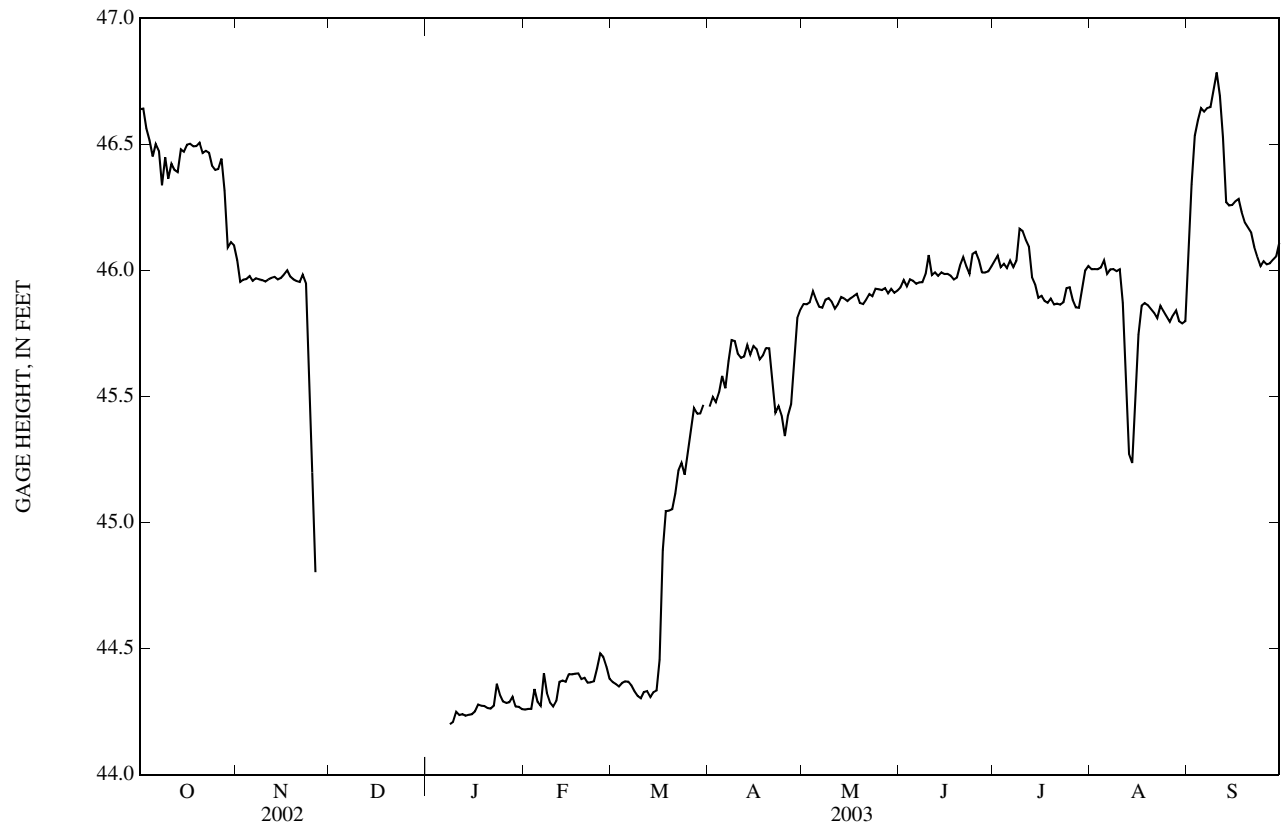
PERIOD OF RECORD.--October 1969 to current year.

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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46.64	46.04	---	---	44.26	44.37	45.46	45.87	45.93	46.04	46.00	46.03
2	46.64	45.95	---	---	44.26	44.36	45.50	45.87	45.96	46.06	46.01	46.34
3	46.56	45.96	---	---	44.26	44.35	45.48	45.87	45.94	46.01	46.01	46.53
4	46.52	45.97	---	---	44.34	44.36	45.52	45.92	45.96	46.03	46.01	46.60
5	46.45	45.98	---	---	44.29	44.37	45.58	45.89	45.96	46.01	46.04	46.64
6	46.50	45.96	---	---	44.27	44.37	45.53	45.86	45.95	46.04	45.99	46.63
7	46.47	45.97	---	---	44.40	44.35	45.64	45.85	45.95	46.01	46.00	46.64
8	46.34	45.96	---	44.20	44.32	44.33	45.72	45.88	45.95	46.04	46.01	46.65
9	46.45	45.96	---	44.21	44.29	44.31	45.72	45.89	45.99	46.17	46.00	46.71
10	46.36	45.96	---	44.25	44.27	44.30	45.67	45.88	46.06	46.16	46.01	46.78
11	46.42	45.96	---	44.24	44.29	44.33	45.65	45.85	45.98	46.12	45.87	46.69
12	46.40	45.97	---	44.24	44.37	44.33	45.66	45.87	45.99	46.10	45.60	46.53
13	46.39	45.97	---	44.23	44.37	44.31	45.70	45.89	45.98	45.97	45.27	46.27
14	46.48	45.96	---	44.24	44.37	44.33	45.67	45.89	45.99	45.94	45.24	46.26
15	46.47	45.97	---	44.24	44.40	44.33	45.70	45.88	45.99	45.89	45.45	46.26
16	46.50	45.98	---	44.25	44.40	44.46	45.69	45.89	45.99	45.90	45.75	46.27
17	46.50	46.00	---	44.28	44.40	44.89	45.65	45.90	45.98	45.88	45.86	46.28
18	46.49	45.98	---	44.27	44.40	45.05	45.66	45.91	45.96	45.87	45.87	46.23
19	46.49	45.96	---	44.27	44.38	45.05	45.69	45.87	45.97	45.89	45.86	46.19
20	46.51	45.96	---	44.26	44.38	45.05	45.69	45.87	46.02	45.87	45.85	46.17
21	46.47	45.95	---	44.26	44.36	45.11	45.57	45.88	46.05	45.87	45.83	46.15
22	46.47	45.98	---	44.27	44.37	45.21	45.44	45.91	46.02	45.86	45.81	46.09
23	46.47	45.95	---	44.36	44.37	45.24	45.46	45.90	45.99	45.87	45.86	46.05
24	46.42	45.62	---	44.32	44.42	45.19	45.42	45.93	46.07	45.93	45.84	46.02
25	46.40	45.20	---	44.29	44.48	45.28	45.34	45.93	46.07	45.93	45.82	46.04
26	46.40	44.80	---	44.28	44.47	45.37	45.42	45.92	46.04	45.88	45.80	46.02
27	46.44	---	---	44.29	44.43	45.45	45.47	45.93	45.99	45.85	45.82	46.03
28	46.32	---	---	44.31	44.38	45.43	45.64	45.91	45.99	45.85	45.84	46.04
29	46.09	---	---	44.27	---	45.43	45.81	45.93	46.00	45.93	45.80	46.06
30	46.11	---	---	44.27	---	45.47	45.84	45.91	46.02	46.00	45.79	46.11
31	46.10	---	---	44.26	---	---	---	45.92	---	46.02	45.80	---
MEAN	46.43	---	---	---	44.36	---	45.60	45.89	45.99	45.97	45.83	46.31
MAX	46.64	---	---	---	44.48	---	45.84	45.93	46.07	46.17	46.04	46.78
MIN	46.09	---	---	---	44.26	---	45.34	45.85	45.93	45.85	45.24	46.02



06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003	
ANNUAL TOTAL	224.74		488.80		^a 7.88	
ANNUAL MEAN	0.62		1.34		73.4	
HIGHEST ANNUAL MEAN					^b 0.000	
LOWEST ANNUAL MEAN					2,500	
HIGHEST DAILY MEAN	33	Mar 31	31	Jun 25		Jul 4, 1993
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	^c 0.00	Oct 1, 1966
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Jan 1	0.00	Oct 1, 1966
MAXIMUM PEAK FLOW			35	Jun 25	3,300	Jul 4, 1993
MAXIMUM PEAK STAGE			5.91	Jun 25	^d 11.95	Jul 4, 1993
ANNUAL RUNOFF (AC-FT)	446		970		5,710	
10 PERCENT EXCEEDS	1.0		3.4		9.8	
50 PERCENT EXCEEDS	0.03		0.17		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

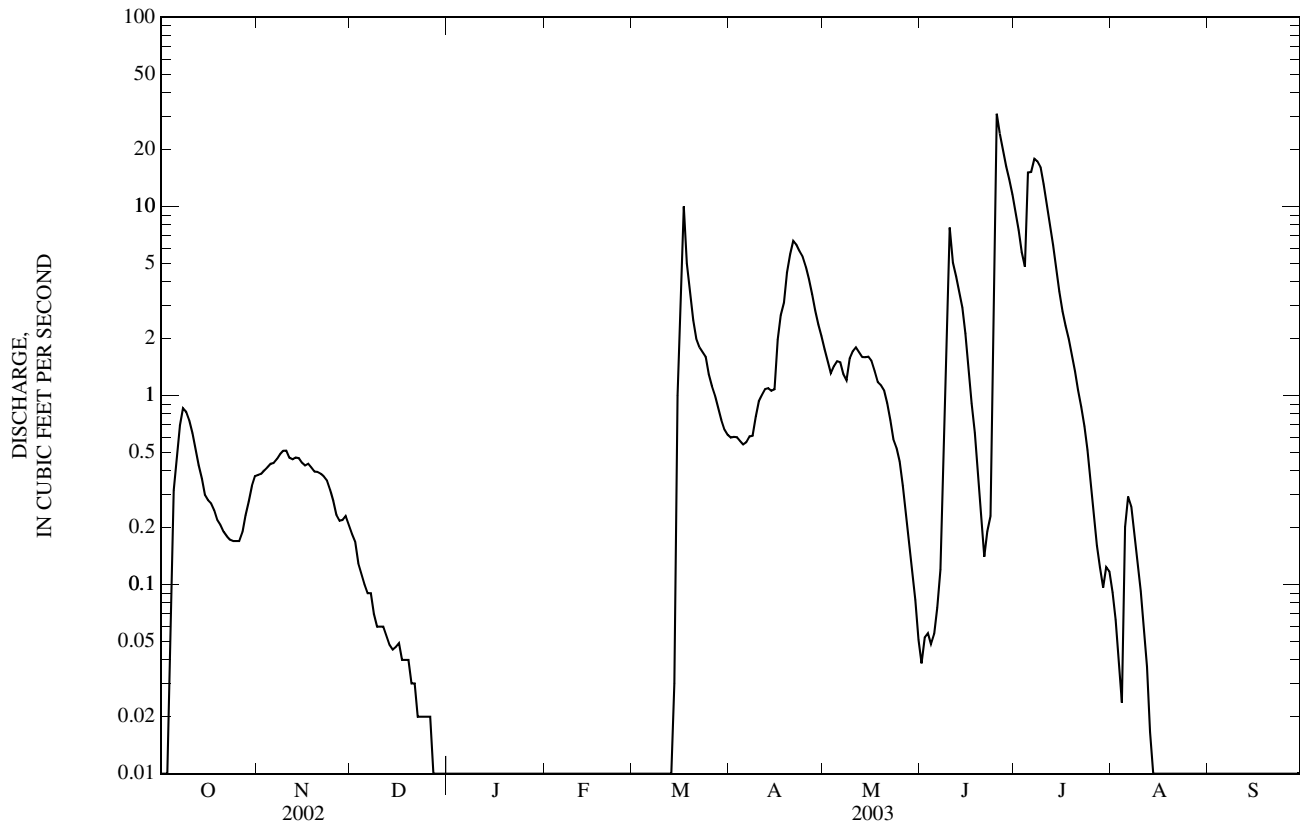
a Median of annual mean discharges, 2.9 ft³/s.

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 NW¹/₄ NW¹/₄ NE¹/₄ 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 mi².

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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	16	e17	e13	e10	e10	15	41	14	208	15	8.4
2	5.7	16	e14	e12	e9.5	e9.0	15	36	13	157	14	8.3
3	6.7	13	e13	e12	e9.0	e8.0	15	32	12	122	13	8.1
4	12	14	e14	e12	e8.5	e7.0	15	31	12	126	13	8.0
5	18	15	e14	e12	e8.0	e8.0	16	39	12	159	16	7.8
6	21	16	e14	e12	e7.0	e10	14	39	15	254	14	7.7
7	24	16	e14	e12	e7.5	e9.0	17	35	13	223	13	7.6
8	22	16	e13	e11	e8.0	e8.0	20	32	13	229	12	7.5
9	22	17	e13	e7.0	e8.5	e8.0	19	37	13	189	12	7.9
10	20	18	e13	e6.5	e9.0	e9.0	18	43	16	147	11	15
11	19	e18	e13	e6.0	e9.0	e10	19	58	22	121	11	13
12	19	17	e13	e6.0	e9.0	e12	20	42	27	97	10	10
13	19	17	e13	e6.5	e8.0	e16	19	38	29	75	10	8.7
14	15	16	e13	e7.0	e7.0	e30	18	42	27	61	9.9	8.2
15	15	16	e14	e8.0	e6.5	e100	21	45	26	57	9.7	7.9
16	13	16	e14	e8.0	e6.5	e200	35	39	26	48	9.2	7.8
17	13	15	15	e8.5	e6.5	e150	38	36	24	42	9.0	7.8
18	13	15	16	e9.0	e7.0	100	36	34	21	40	8.8	9.5
19	13	17	16	e9.0	e9.0	79	72	39	18	35	8.8	9.2
20	11	16	12	e8.0	e10	63	88	48	15	32	10	8.1
21	10	18	e11	e7.5	e9.0	48	90	31	12	30	10	8.8
22	11	18	e10	e7.0	e8.0	38	77	27	13	27	9.5	8.6
23	10	15	e10	e7.0	e7.0	31	68	26	12	25	9.3	7.8
24	10	14	e10	e7.0	e7.0	31	65	26	31	22	9.0	7.5
25	11	e13	e12	e7.5	e8.0	29	64	26	2,430	19	9.1	7.2
26	11	e13	e13	e8.0	e9.0	27	53	24	1,670	18	9.4	7.6
27	12	e13	e14	e8.5	e10	24	44	22	874	19	8.9	7.6
28	12	e13	e15	e9.0	e10	29	44	20	634	18	8.8	7.3
29	13	e13	e14	e9.0	---	27	38	19	426	17	8.5	7.0
30	16	e14	e13	e10	---	19	40	16	289	17	8.3	6.9
31	17	---	e13	e10	---	16	---	23	---	16	8.3	---
TOTAL	439.8	464	413	276.0	231.5	1,165.0	1,113	1,046	6,759	2,650	328.5	252.8
MEAN	14.2	15.5	13.3	8.90	8.27	37.6	37.1	33.7	225	85.5	10.6	8.43
MAX	24	18	17	13	10	200	90	58	2,430	254	16	15
MIN	5.4	13	10	6.0	6.5	7.0	14	16	12	16	8.3	6.9
AC-FT	872	920	819	547	459	2,310	2,210	2,070	13,410	5,260	652	501

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)

	1996	1997	1998	1999	2000	2001	2002	2003
MEAN	92.5	96.8	53.9	32.1	52.4	187	404	254
MAX	332	280	151	128	215	732	1,070	832
(WY)	(1996)	(1996)	(1996)	(1996)	(1996)	(1997)	(1997)	(1997)
MIN	5.35	5.36	2.21	1.80	1.55	37.6	37.1	33.7
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2003)	(2003)	(2003)

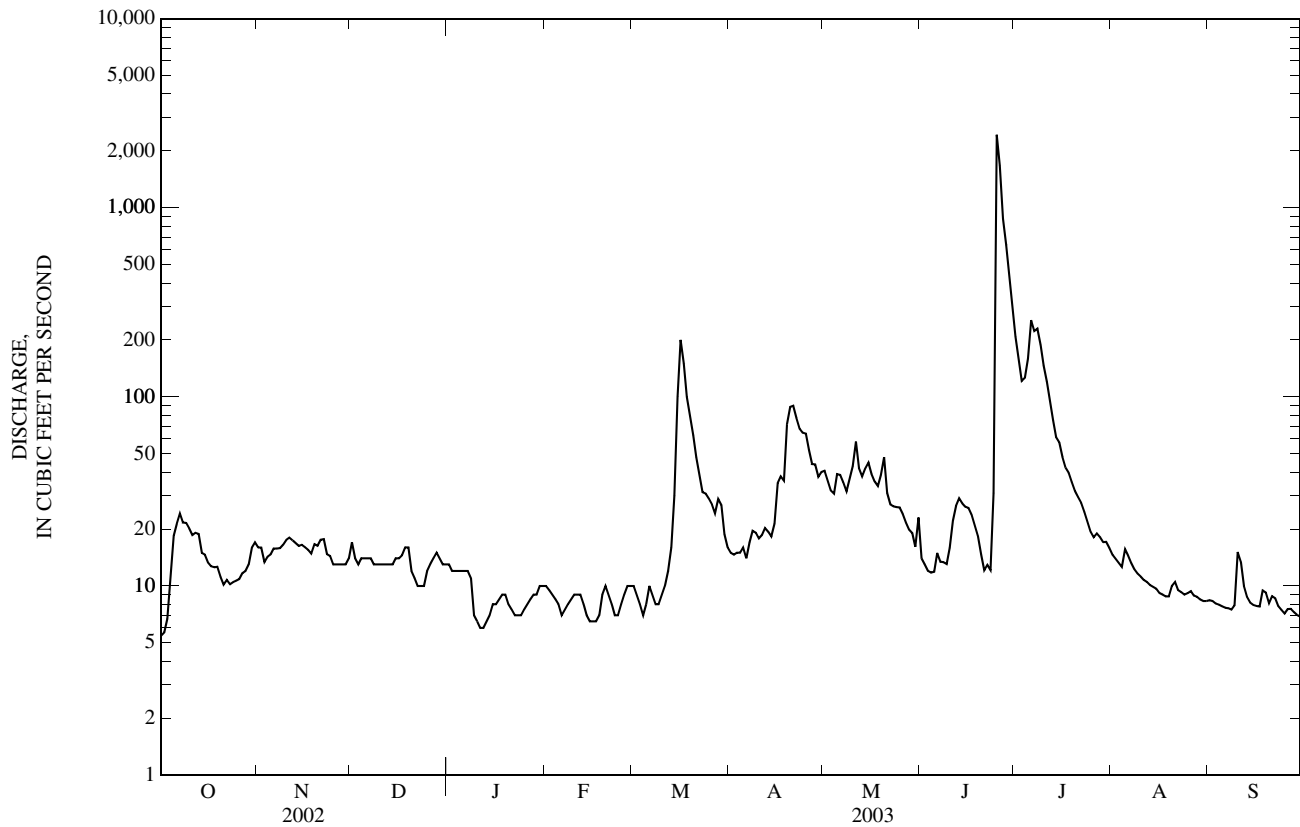
06478600 EAST FORK VERMILLION RIVER NEAR PARKER, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003	
ANNUAL TOTAL	17,218.6		15,138.6		132	
ANNUAL MEAN	47.2		41.5		298	
HIGHEST ANNUAL MEAN					33.0	
LOWEST ANNUAL MEAN					3,960	
HIGHEST DAILY MEAN	585	Mar 29	2,430	Jun 25	3,960	Mar 29, 1997
LOWEST DAILY MEAN	5.4	Oct 1	5.4	Oct 1	0.95	Feb 2, 2001
ANNUAL SEVEN-DAY MINIMUM	5.7	Sep 26	6.7	Jan 9	1.1	Jan 30, 2001
MAXIMUM PEAK FLOW			2,930	Jun 25	^a 4,210	Mar 29, 1997
MAXIMUM PEAK STAGE			12.18	Jun 25	^b 12.75	Mar 22, 1997
ANNUAL RUNOFF (AC-FT)	34,150		30,030		95,910	
10 PERCENT EXCEEDS	88		50		292	
50 PERCENT EXCEEDS	30		14		59	
90 PERCENT EXCEEDS	12		7.8		8.0	

a Gage height, 12.73 ft.

b Backwater from ice.

c Estimated.



06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°24'55", long 97°12'18", in NE¹/₄ NE¹/₄ 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 mi².

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 good except those for June 30 to Aug. 6 and Sept. 22-30, which are fair, and 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	4.0	e3.1	2.0	e1.6	e0.70	3.3	11	4.5	80	2.0	0.89
2	1.2	4.6	3.0	2.1	e1.6	e0.50	3.5	7.6	3.7	50	1.9	0.82
3	1.1	5.1	2.7	2.1	e1.5	e0.50	3.5	6.0	3.4	60	1.6	0.83
4	3.5	5.6	2.8	2.2	e1.4	e0.40	4.1	6.3	3.4	71	1.6	0.81
5	3.5	6.9	2.7	2.3	e1.3	e0.35	5.2	9.4	3.5	50	5.0	0.77
6	36	7.0	2.6	2.5	e1.2	e0.30	8.1	7.1	3.7	199	4.7	0.75
7	24	7.0	2.5	2.5	e1.1	e0.25	10	5.5	3.4	215	2.6	0.80
8	16	7.0	2.4	2.5	e1.1	e0.18	10	4.8	3.2	369	1.9	0.77
9	12	6.3	2.4	e2.2	e1.1	e0.12	6.1	5.5	3.4	258	1.6	0.81
10	9.0	5.3	2.4	e2.0	e1.2	e0.10	6.8	4.9	8.5	157	2.2	3.6
11	7.2	4.8	2.4	e1.8	e1.3	e0.40	8.6	7.2	70	115	2.0	3.2
12	6.5	4.6	2.4	e1.7	e1.4	e2.0	13	8.1	113	77	2.7	2.2
13	6.2	4.5	2.4	e1.6	e1.2	e2.0	13	9.8	64	62	2.4	1.6
14	5.7	4.3	2.3	e1.6	e1.0	e3.0	10	14	47	56	2.3	e1.3
15	4.9	4.0	2.3	e1.7	e0.80	e65	8.4	12	32	44	2.0	e1.3
16	4.7	3.8	2.3	e1.8	e0.70	e80	12	11	18	32	1.9	e1.3
17	4.6	3.9	e2.2	e2.0	e0.75	e91	11	8.2	11	22	1.4	e0.94
18	4.5	3.9	e2.0	e2.0	e0.80	35	16	6.1	7.4	15	1.2	e0.85
19	4.1	3.8	e2.0	e2.0	e0.85	20	36	6.8	5.5	12	1.1	e0.63
20	4.0	3.6	e2.2	e1.9	e1.0	12	42	4.5	4.2	9.0	1.4	e0.41
21	4.2	3.6	e2.3	e1.8	e1.1	8.3	48	3.6	3.5	7.6	1.2	e0.35
22	3.8	3.6	e2.4	e1.6	e1.0	5.6	38	3.6	3.5	6.0	1.0	0.33
23	3.6	3.4	2.4	e1.4	e0.85	4.3	32	3.9	3.1	4.8	0.96	0.31
24	3.6	2.9	2.3	e1.3	e0.70	3.6	31	4.1	33	4.1	0.91	0.30
25	3.6	e2.9	2.2	e1.2	e0.60	2.8	26	3.5	1,070	3.3	0.91	0.28
26	5.0	e3.0	2.1	e1.2	e0.65	2.0	19	3.0	1,550	2.6	0.88	0.28
27	5.0	3.1	2.0	e1.2	e0.70	2.2	14	2.9	977	2.3	0.84	0.27
28	4.6	3.2	2.0	e1.3	e0.70	2.2	11	3.1	427	2.2	0.82	0.26
29	4.2	3.3	2.0	e1.4	---	2.7	8.5	3.2	218	2.4	0.88	0.27
30	4.5	e3.4	2.0	e1.5	---	3.4	11	4.1	147	2.7	0.90	0.26
31	4.2	---	2.0	e1.6	---	3.5	---	4.1	---	2.2	0.90	---
TOTAL	206.3	132.4	72.8	56.0	29.20	399.40	469.1	194.9	4,844.9	1,993.2	53.70	27.49
MEAN	6.65	4.41	2.35	1.81	1.04	12.9	15.6	6.29	161	64.3	1.73	0.92
MAX	36	7.0	3.1	2.5	1.6	91	48	14	1,550	369	5.0	3.6
MIN	1.1	2.9	2.0	1.2	0.60	0.10	3.3	2.9	3.1	2.2	0.82	0.26
AC-FT	409	263	144	111	58	792	930	387	9,610	3,950	107	55

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2003, BY WATER YEAR (WY)

MEAN	6.73	9.65	2.92	1.10	16.8	126	140	62.2	83.4	47.9	9.86	11.2
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	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.001	0.008	0.000	0.000	0.000
(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 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1962 - 2003	
ANNUAL TOTAL	4,834.97		8,479.39		^a 43.1	
ANNUAL MEAN	13.2		23.2		249	
HIGHEST ANNUAL MEAN					0.019	
LOWEST ANNUAL MEAN					1981	
HIGHEST DAILY MEAN	568	Aug 23	1,550	Jun 26	4,410	Apr 23, 2001
LOWEST DAILY MEAN	0.21	Jul 23	0.10	Mar 10	^b 0.00	Oct 6, 1961
ANNUAL SEVEN-DAY MINIMUM	0.24	Jul 17	0.24	Mar 4	0.00	Nov 4, 1961
MAXIMUM PEAK FLOW			1,750	Jun 26	^c 6,370	Apr 23, 2001
MAXIMUM PEAK STAGE			10.10	Jun 26	^d 13.14	May 8, 1993
ANNUAL RUNOFF (AC-FT)	9,590		16,820		31,220	
10 PERCENT EXCEEDS	25		32		63	
50 PERCENT EXCEEDS	3.2		3.2		1.1	
90 PERCENT EXCEEDS	1.2		0.81		0.00	

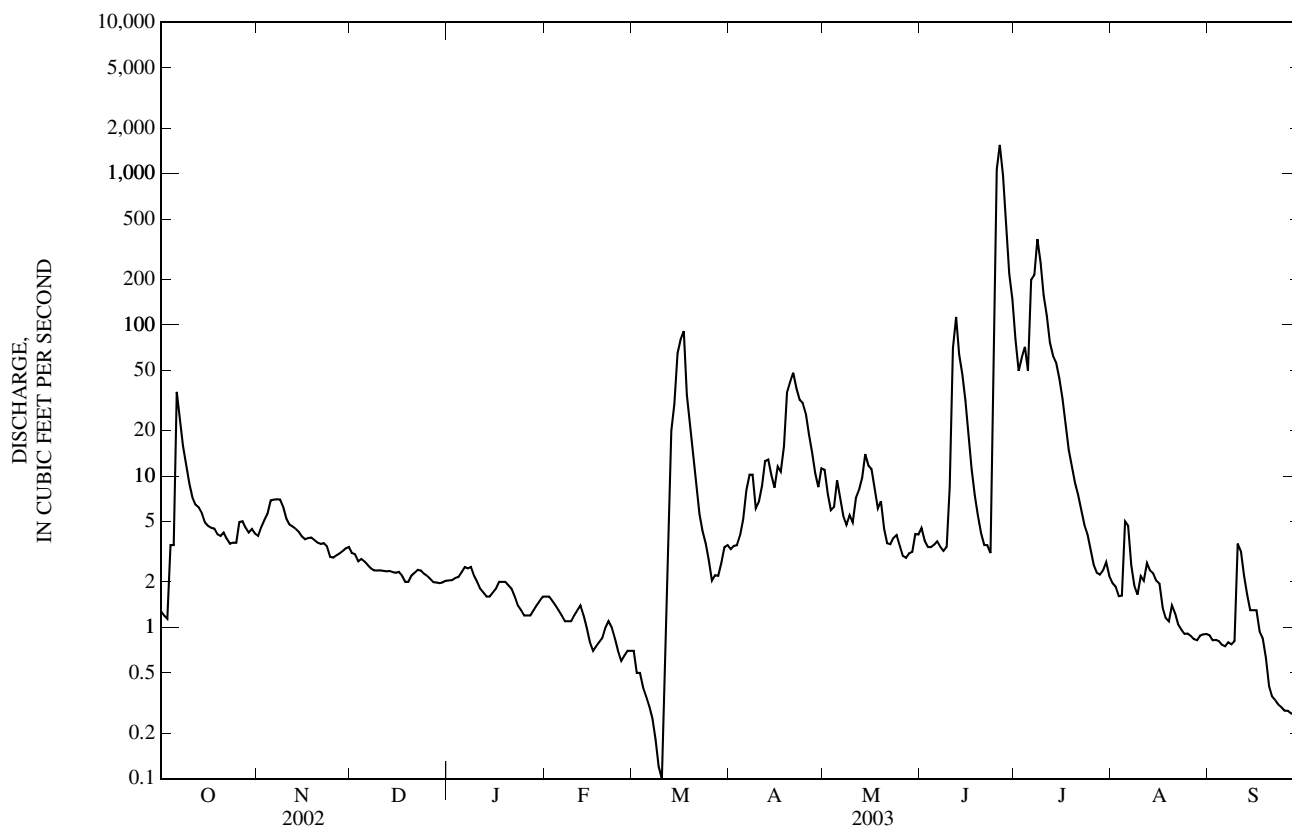
a Median of annual mean discharges, 19 ft³/s.

b No flow for many days in most years.

c Gage height, 12.22 ft.

d Discharge, 6,300 ft³/s.

e Estimated.



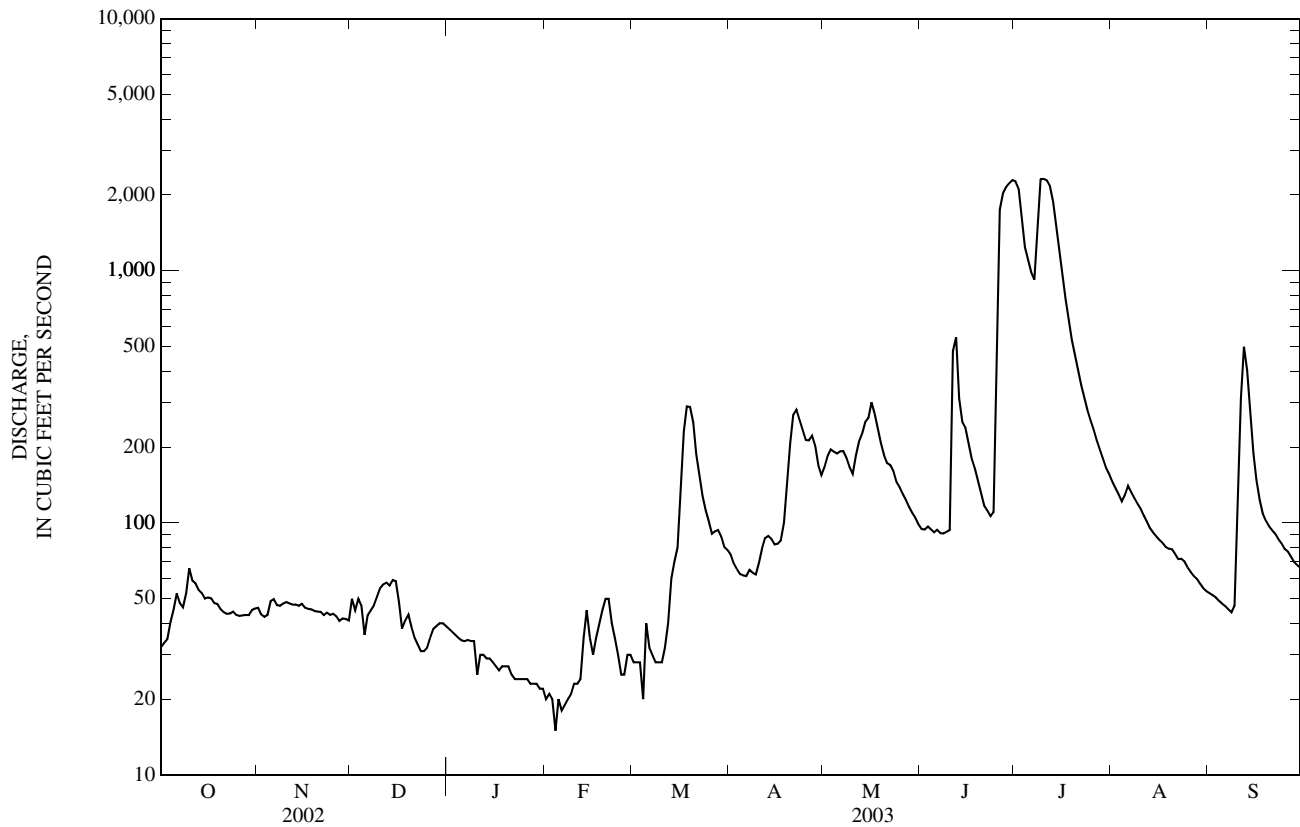
06479010 VERMILLION RIVER NEAR VERMILLION, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1984 - 2003	
ANNUAL TOTAL	36,061		71,374		^a 390	
ANNUAL MEAN	98.8		196		1,416	
HIGHEST ANNUAL MEAN					27.9	
LOWEST ANNUAL MEAN					20,200	
HIGHEST DAILY MEAN	674	Apr 1	2,310	Jul 9	Jun 23, 1984	
LOWEST DAILY MEAN	31	Dec 23	15	Feb 4	Oct 10, 1991	
ANNUAL SEVEN-DAY MINIMUM	34	Dec 21	19	Feb 1	Oct 6, 1991	
MAXIMUM PEAK FLOW			2,340	Jul 9	Jun 23, 1984	
MAXIMUM PEAK STAGE			14.08	Jul 9	Jun 23, 1984	
ANNUAL RUNOFF (AC-FT)	71,530		141,600		282,600	
10 PERCENT EXCEEDS	190		294		926	
50 PERCENT EXCEEDS	76		64		105	
90 PERCENT EXCEEDS	40		28		14	

a Median of annual mean discharges, 290 ft³/s.

b Also Oct. 18, 1991.

c Estimated.



06479159 BLUE DOG LAKE INFLOW (OWENS CREEK) NEAR WAUBAY, SD

LOCATION.--Lat 45° 20'48", long 97° 15'07", in NE¹/₄ NW¹/₄ SE¹/₄ sec.14, T.122 N., R.53 W., Day County, Hydrologic Unit 10160010, on left bank at downstream side of township bridge, 2.1 mi upstream from Blue Dog Lake, 1.3 mi west of Day-Roberts County line, and 2.8 mi northeast of Waubay.

DRAINAGE AREA.--63.7 mi² (included in Waubay Lakes Chain Closed Basin).

PERIOD OF RECORD.--July 1999 to current year. Miscellaneous discharge measurements only prior to October 1999.

GAGE.--Water-stage recorder. Elevation of gage is 1,820 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	6.9	e6.0	e6.0	e5.5	e4.0	11	11	7.8	8.8	4.5	3.7
2	5.8	7.1	e5.0	e6.0	e5.0	e4.0	11	10	9.1	7.9	4.5	3.4
3	6.8	7.3	e4.8	e6.5	e5.0	e4.5	10	9.4	10	7.4	4.4	3.2
4	14	7.5	e4.7	e6.5	e4.5	e4.0	e8.0	13	8.8	12	4.3	3.2
5	17	7.9	e4.8	e6.5	e4.0	e4.0	7.0	20	8.3	12	4.4	3.2
6	14	8.2	e5.0	e6.5	e3.6	e4.5	8.0	22	8.7	8.5	4.9	3.2
7	11	8.6	e5.0	e7.0	e3.5	e4.0	7.9	16	12	7.4	4.8	3.0
8	9.8	9.2	e5.0	e7.5	e3.5	e4.0	6.8	13	13	6.8	4.4	2.8
9	8.8	9.3	e5.3	e7.3	e3.5	e3.4	7.2	37	10	7.2	4.6	2.7
10	8.8	9.6	5.7	e6.0	e3.0	e3.4	8.1	37	19	7.5	7.7	3.5
11	8.8	9.6	5.8	e6.0	e3.0	e4.0	8.0	21	15	6.5	7.2	4.1
12	10	8.2	5.8	e6.0	e3.0	e3.8	8.0	15	10	6.2	5.8	4.0
13	8.9	8.7	5.6	e5.0	e3.0	e3.8	8.1	15	8.9	5.9	5.2	4.0
14	8.2	9.0	5.9	e5.0	e3.5	e4.0	8.6	39	8.1	5.8	4.7	4.1
15	8.4	7.9	6.0	e5.0	e3.5	e5.0	9.1	31	7.4	5.8	4.2	3.9
16	8.6	6.8	5.9	e5.0	e4.0	e10	8.5	18	6.7	5.5	4.0	4.0
17	10	7.0	6.1	e5.0	e4.5	e50	10	14	6.4	5.4	3.7	3.7
18	10	7.5	6.0	e5.0	e4.5	e45	15	13	5.9	5.8	3.3	8.3
19	9.9	7.9	5.9	e5.0	e5.1	e40	29	13	5.4	5.6	3.3	7.4
20	8.8	8.3	5.9	e4.5	e5.0	e30	23	12	5.0	7.6	3.2	5.5
21	8.8	9.2	e5.8	e4.0	e4.5	e25	15	11	4.9	8.5	3.3	5.1
22	9.2	8.2	e5.8	e4.0	e4.0	e20	12	12	15	6.4	3.3	5.1
23	9.1	e8.0	e5.5	e4.0	e4.0	16	11	11	41	5.8	3.0	4.9
24	8.8	e6.5	e5.0	e4.0	e3.6	17	9.6	11	95	5.4	2.9	4.5
25	9.2	e6.0	e5.0	e4.0	e3.6	13	9.1	11	92	5.3	3.0	4.7
26	9.6	e5.5	e5.3	e4.0	e4.0	11	9.2	9.9	64	5.3	3.0	4.6
27	8.9	e5.0	e6.0	e4.5	e4.5	10	8.8	9.1	24	5.8	3.0	4.9
28	9.1	e5.5	e6.5	e5.0	e4.5	10	8.5	9.3	14	5.4	2.9	5.0
29	e9.0	e6.0	e6.5	e4.5	---	15	10	8.5	11	5.0	3.5	4.9
30	e8.0	e5.5	e6.0	e4.5	---	8.2	12	8.5	9.7	4.7	3.5	4.8
31	7.8	---	e6.0	e5.0	---	7.9	---	8.1	---	4.6	3.5	---
TOTAL	290.7	227.9	173.6	164.8	112.9	388.5	317.5	488.8	556.1	207.8	128.0	129.4
MEAN	9.38	7.60	5.60	5.32	4.03	12.5	10.6	15.8	18.5	6.70	4.13	4.31
MAX	17	9.6	6.5	7.5	5.5	50	29	39	95	12	7.7	8.3
MIN	5.6	5.0	4.7	4.0	3.0	3.4	6.8	8.1	4.9	4.6	2.9	2.7
AC-FT	577	452	344	327	224	771	630	970	1,100	412	254	257

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

	MEAN	8.94	8.64	6.17	4.82	6.05	10.0	35.4	18.9	16.5	7.43	4.70	5.15
MAX		11.4	10.3	8.41	5.32	9.76	12.5	98.8	30.0	31.1	10.4	5.75	8.41
(WY)		(2002)	(2002)	(2002)	(2003)	(2002)	(2003)	(2001)	(2001)	(2001)	(2000)	(2001)	(2001)
MIN		5.55	7.15	4.11	4.53	3.78	5.14	10.6	11.7	7.88	4.57	4.13	3.47
(WY)		(2001)	(2001)	(2001)	(2002)	(2001)	(2001)	(2003)	(2000)	(2000)	(2002)	(2003)	(2000)

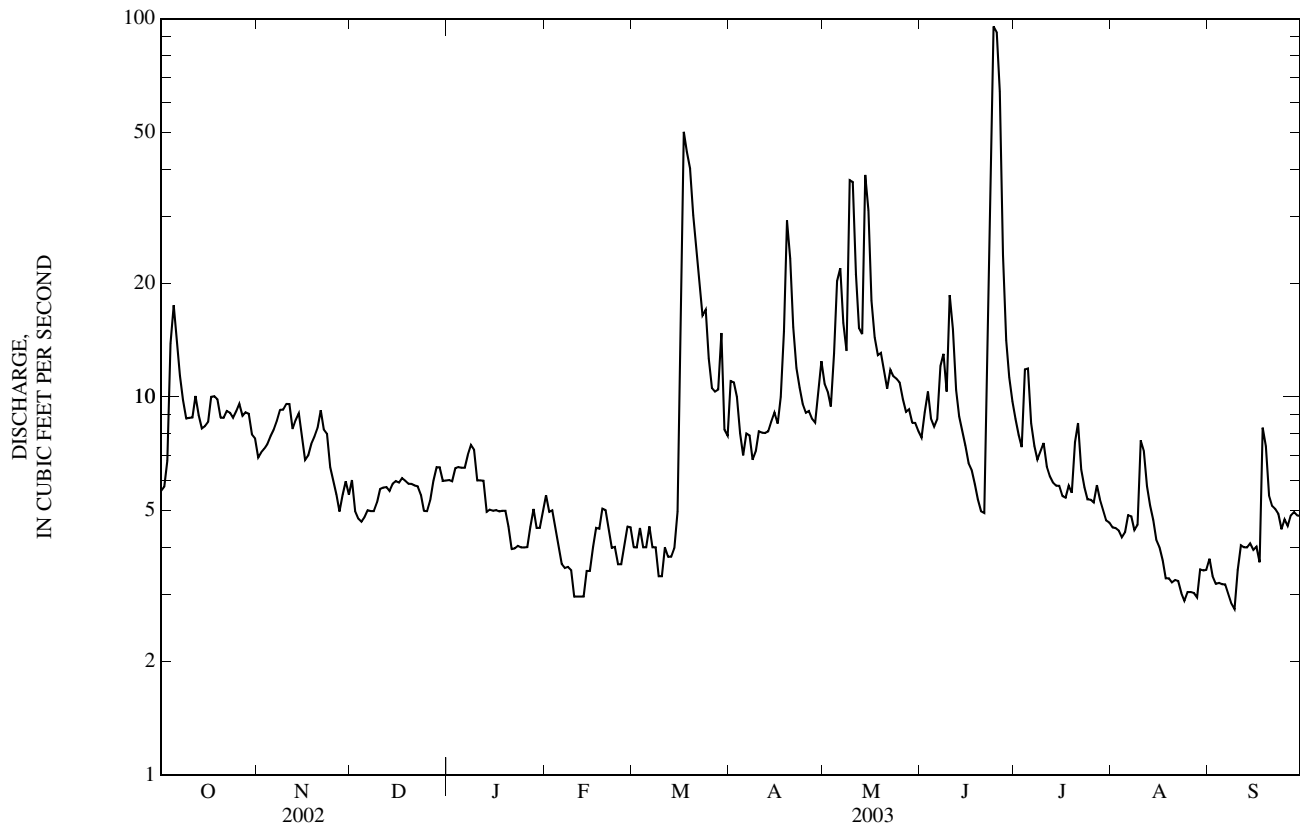
06479159 BLUE DOG LAKE INFLOW (OWENS CREEK) NEAR WAUBAY, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	3,302.1		3,186.0		11.0	
ANNUAL MEAN	9.05		8.73		17.6	
HIGHEST ANNUAL MEAN					8.17	
LOWEST ANNUAL MEAN					350	
HIGHEST DAILY MEAN	70	Mar 30	95	Jun 24	2.5	Apr 8, 2001
LOWEST DAILY MEAN	2.5	Jan 29	2.7	Sep 9	2.5	Sep 14, 2000
ANNUAL SEVEN-DAY MINIMUM	2.7	Jan 28	3.0	Aug 22	2.7	Sep 13, 2000
MAXIMUM PEAK FLOW			^a 107	Jun 24	410	Apr 8, 2001
MAXIMUM PEAK STAGE			^b 4.42	Mar 17	^b 5.42	Apr 8, 2001
ANNUAL RUNOFF (AC-FT)	6,550		6,320		8,000	
10 PERCENT EXCEEDS	18		14		18	
50 PERCENT EXCEEDS	6.1		6.4		6.6	
90 PERCENT EXCEEDS	3.9		3.6		4.0	

a Gage height, 4.39 ft.

b Backwater from ice.

c Estimated.



06479215 BIG SIOUX RIVER NEAR FLORENCE, SD

LOCATION.--Lat 45° 10'51", long 97° 11'09", in NE¹/₄ NE¹/₄ NE¹/₄ 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 mi², of which 570 mi² 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.23	0.39	e0.40	e0.25	e0.17	e0.08	5.9	12	0.93	e4.6	0.13	0.05
2	0.25	0.39	e0.38	e0.25	e0.16	e0.07	5.3	10	0.94	e4.4	0.11	0.03
3	0.25	0.38	e0.35	e0.25	e0.15	e0.08	4.8	8.6	0.89	e4.3	0.12	0.04
4	0.78	0.40	e0.35	e0.25	e0.15	e0.07	4.6	9.0	0.77	e4.0	0.10	0.05
5	0.37	0.41	e0.30	e0.25	e0.15	e0.07	4.0	14	0.94	e3.8	0.08	0.05
6	0.31	0.43	e0.35	e0.25	e0.10	e0.08	3.8	20	2.2	e3.6	0.12	0.04
7	0.27	0.47	e0.35	e0.30	e0.10	e0.07	3.8	20	3.8	2.9	0.13	0.03
8	0.27	0.50	e0.30	e0.43	e0.10	e0.06	3.4	18	3.3	1.2	0.12	0.03
9	0.27	0.50	e0.28	e0.40	e0.09	e0.06	3.3	27	2.3	0.91	0.11	0.03
10	0.30	0.49	e0.28	e0.25	e0.09	e0.08	3.2	37	4.8	0.70	0.08	0.05
11	0.30	0.47	e0.30	e0.20	e0.08	e0.12	3.2	35	5.1	0.56	0.05	0.04
12	0.33	0.49	e0.30	e0.18	e0.08	e0.09	3.1	32	5.2	0.41	0.04	0.04
13	0.30	0.52	e0.30	e0.17	e0.09	e0.09	2.9	29	5.8	0.29	0.03	0.04
14	0.29	0.50	e0.32	e0.16	e0.09	e0.14	3.3	32	6.8	0.60	0.02	0.05
15	0.28	e0.49	e0.33	e0.15	e0.09	e1.0	3.6	35	6.7	0.54	0.02	0.04
16	0.34	e0.48	e0.34	e0.15	e0.10	e50	3.9	31	6.3	0.38	0.01	0.04
17	0.35	e0.50	e0.35	e0.15	e0.12	e85	4.9	27	5.7	0.34	0.01	0.04
18	0.35	e0.52	e0.40	e0.15	e0.10	e70	6.4	23	4.7	0.31	0.01	0.09
19	0.33	e0.54	e0.38	e0.15	e0.10	e55	13	21	3.5	0.23	0.01	0.07
20	0.33	e0.56	e0.35	e0.15	e0.10	e37	19	17	2.6	0.26	0.02	0.06
21	0.33	e0.56	e0.33	e0.13	e0.09	e30	20	12	1.8	0.20	0.01	0.07
22	0.34	e0.54	e0.31	e0.10	e0.08	26	21	13	9.6	0.18	0.02	0.07
23	0.33	e0.50	e0.30	e0.10	e0.08	22	20	10	20	0.15	0.01	0.08
24	0.34	e0.45	e0.28	e0.09	e0.07	19	19	8.7	e8.7	0.12	0.01	0.07
25	0.37	e0.40	e0.25	e0.08	e0.08	e14	16	7.2	e7.0	0.08	0.03	0.08
26	0.39	e0.35	e0.25	e0.08	e0.08	e12	13	5.5	e7.8	0.12	0.04	0.09
27	0.38	e0.35	e0.25	e0.09	e0.08	e10	11	4.3	e7.3	0.12	0.08	0.09
28	0.41	e0.40	e0.27	e0.15	e0.08	e9.0	9.8	3.4	e6.5	0.12	0.06	0.10
29	e0.40	e0.45	e0.29	e0.13	---	e8.0	9.6	2.5	e6.0	0.09	0.05	0.11
30	e0.39	e0.40	e0.27	e0.15	---	6.4	11	1.8	e5.6	0.12	0.06	0.14
31	e0.38	---	e0.25	e0.17	---	6.0	---	1.2	---	0.14	0.06	---
TOTAL	10.56	13.83	9.76	5.76	2.85	461.56	255.8	527.2	153.57	35.77	1.75	1.81
MEAN	0.34	0.46	0.31	0.19	0.10	14.9	8.53	17.0	5.12	1.15	0.056	0.060
MAX	0.78	0.56	0.40	0.43	0.17	85	21	37	20	4.6	0.13	0.14
MIN	0.23	0.35	0.25	0.08	0.07	0.06	2.9	1.2	0.77	0.08	0.01	0.03
AC-FT	21	27	19	11	5.7	916	507	1,050	305	71	3.5	3.6

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2003, BY WATER YEAR (WY)

	MEAN	6.59	4.53	2.27	0.88	4.34	39.5	56.3	23.3	15.1	21.1	6.81	4.11
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	0.010	0.056	0.025	0.000	0.000	0.25	1.08	1.73	0.28	0.020	0.056	0.032	
(WY)	(1989)	(1989)	(1990)	(1990)	(1990)	(2001)	(1990)	(1988)	(1988)	(1988)	(2003)	(1988)	

06479215 BIG SIOUX RIVER NEAR FLORENCE, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1985 - 2003	
ANNUAL TOTAL	1,888.58		1,480.22		^a 15.4	
ANNUAL MEAN	5.17		4.06		39.6	
HIGHEST ANNUAL MEAN					0.62	
LOWEST ANNUAL MEAN					1,600	
HIGHEST DAILY MEAN	100	Mar 29	85	Mar 17	^b 0.00	Apr 5, 1997
LOWEST DAILY MEAN	0.16	Jul 17	0.01	Aug 16	^b 0.00	Aug 9, 1985
ANNUAL SEVEN-DAY MINIMUM	0.19	Aug 13	0.01	Aug 15	0.00	Dec 16, 1989
MAXIMUM PEAK FLOW			100	Mar 17	^c 2,000	Apr 4, 1997
MAXIMUM PEAK STAGE			^d 7.29	Mar 17	^d 9.52	Apr 2, 1997
ANNUAL RUNOFF (AC-FT)	3,750		2,940		11,180	
10 PERCENT EXCEEDS	18		12		33	
50 PERCENT EXCEEDS	0.53		0.33		1.7	
90 PERCENT EXCEEDS	0.24		0.06		0.08	

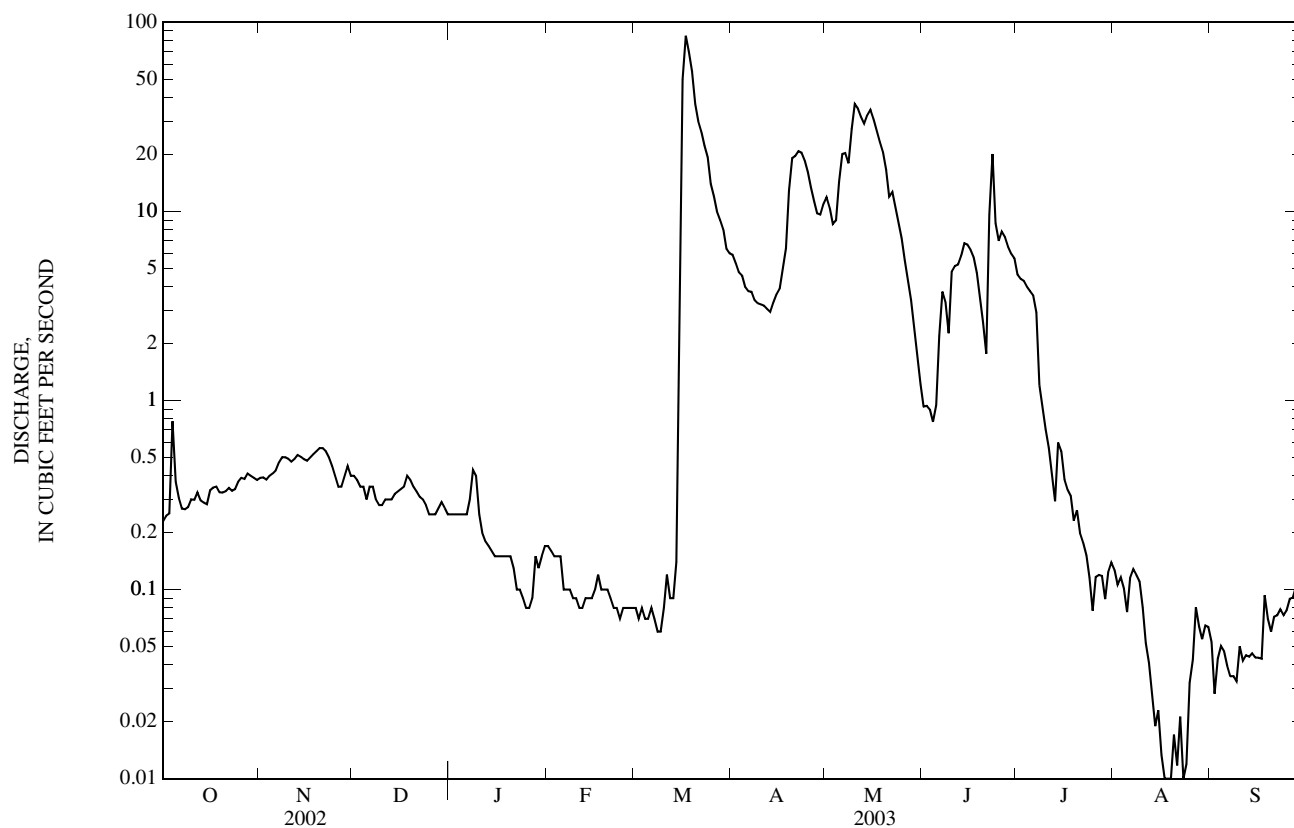
a Median of annual mean discharges, 9.8 ft³/s.

b No flow Aug. 9-11, 1985, Dec. 16 to Mar. 5, 1990, and Feb. 16-25, 1991.

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 NE¹/₄ NE¹/₄ NE¹/₄ 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 mi², of which 779 mi² usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi² 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 Apr. 3-10, May 10-12, and July 20, 21, which are fair, and 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.46	2.7	e2.5	e1.5	e0.80	e0.12	17	22	12	5.1	0.76	0.36
2	0.63	2.7	e2.0	e1.5	e0.80	e0.12	16	21	13	4.7	0.72	0.29
3	0.87	2.8	e1.8	e1.5	e0.75	e0.12	15	20	12	4.6	0.76	0.26
4	3.5	3.0	e1.6	e1.5	e0.58	e0.12	12	20	11	4.9	0.78	0.26
5	4.3	3.0	e1.5	e1.5	e0.49	e0.12	13	23	13	4.6	1.00	0.30
6	4.3	2.9	e1.5	e1.5	e0.30	e0.21	14	26	14	4.0	0.95	0.28
7	4.0	3.0	e1.5	e1.6	e0.28	e0.12	12	29	12	3.5	0.88	0.24
8	3.1	2.9	e1.5	e1.8	e0.27	e0.12	11	30	13	3.2	0.86	0.23
9	3.1	2.9	e1.5	e1.5	e0.26	e0.12	11	36	15	3.1	0.96	0.25
10	3.2	2.7	e1.6	e1.0	e0.25	e0.12	11	48	15	2.8	1.1	0.55
11	3.0	e2.0	e1.7	e0.87	e0.25	e0.12	11	58	15	2.5	0.98	0.33
12	3.0	e3.0	e1.9	e0.77	e0.25	e0.12	10	55	14	2.3	0.89	0.27
13	2.9	2.8	e2.0	e0.68	e0.25	e0.12	9.7	49	12	1.7	0.86	0.19
14	2.6	2.8	e2.0	e0.65	e0.25	e1.0	9.4	48	11	1.7	0.80	0.16
15	2.3	3.0	e2.2	e0.61	e0.25	e5.0	10	51	9.4	1.6	0.73	0.18
16	2.9	2.9	e2.3	e0.61	e0.26	e50	11	56	8.5	1.5	0.63	0.18
17	2.8	2.8	e2.5	e0.61	e0.32	e200	14	52	7.8	1.4	0.61	0.18
18	3.0	3.1	e2.8	e0.61	e0.28	e180	16	44	6.2	1.5	0.58	0.41
19	3.0	3.0	e2.4	e0.58	e0.30	e140	21	39	5.0	1.3	0.60	0.21
20	3.0	3.0	e2.0	e0.57	e0.30	e124	26	34	4.1	2.6	0.63	0.18
21	2.8	2.9	e1.6	e0.55	e0.17	e70	30	30	3.5	2.5	0.42	0.23
22	3.0	3.2	e1.3	e0.55	e0.14	52	31	29	3.4	2.1	0.33	0.19
23	3.0	2.8	e1.0	e0.51	e0.10	43	30	29	3.3	1.8	0.38	0.13
24	3.0	e2.5	e0.90	e0.51	e0.10	33	28	28	4.6	1.5	0.38	0.12
25	3.1	e2.3	e0.83	e0.51	e0.10	29	26	26	7.2	1.3	0.46	0.14
26	3.2	e2.0	e0.71	e0.55	e0.12	25	24	24	7.8	1.2	0.37	0.14
27	3.3	e2.0	e0.58	e0.55	e0.15	23	22	22	7.6	1.2	0.23	0.18
28	3.3	e2.0	e0.68	e0.55	e0.15	21	20	20	6.7	1.1	0.34	0.18
29	3.2	e2.5	e0.78	e0.50	---	18	20	18	6.1	1.1	0.31	0.15
30	e3.2	e2.0	e1.0	e0.58	---	18	21	16	5.8	1.1	0.29	0.14
31	e3.0	---	e1.5	e0.68	---	17	---	15	---	0.81	0.32	---
TOTAL	90.06	81.2	49.68	27.50	8.52	1,050.65	522.1	1,018	279.0	74.31	19.91	6.91
MEAN	2.91	2.71	1.60	0.89	0.30	33.9	17.4	32.8	9.30	2.40	0.64	0.23
MAX	4.3	3.2	2.8	1.8	0.80	200	31	58	15	5.1	1.1	0.55
MIN	0.46	2.0	0.58	0.50	0.10	0.12	9.4	15	3.3	0.81	0.23	0.12
AC-FT	179	161	99	55	17	2,080	1,040	2,020	553	147	39	14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2003, BY WATER YEAR (WY)

	MEAN	17.1	14.3	6.99	3.09	9.95	101	169	65.3	51.0	46.1	20.0	12.0
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)	(1995)
MIN	0.034	0.10	0.005	0.000	0.000	0.26	2.95	0.57	0.035	0.051	0.035	0.028	
(WY)	(1989)	(1989)	(1977)	(1977)	(1977)	(1975)	(1990)	(1981)	(1976)	(1976)	(1976)	(1982)	

06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD—Continued

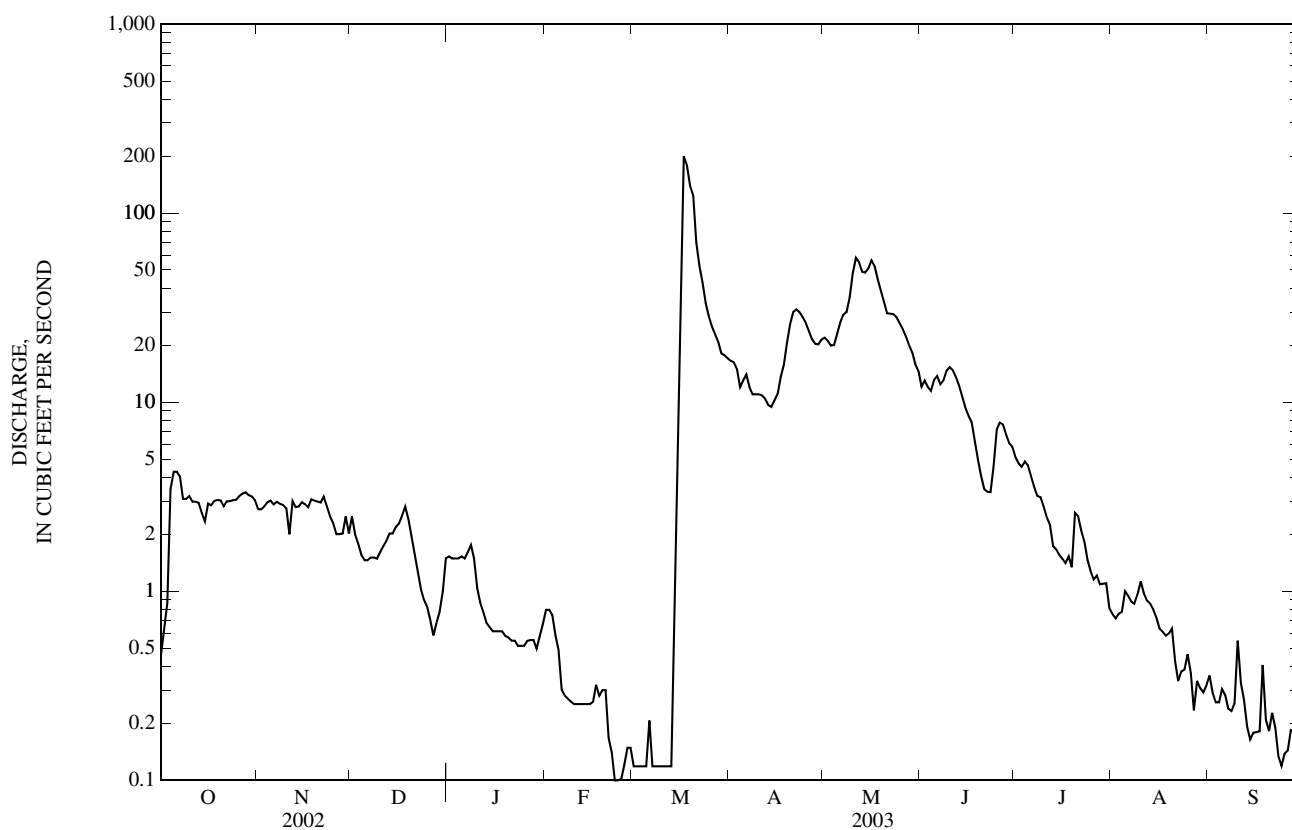
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1973 - 2003	
ANNUAL TOTAL	5,545.40		3,227.84		^a 43.1	
ANNUAL MEAN	15.2		8.84		155	
HIGHEST ANNUAL MEAN					2.22	
LOWEST ANNUAL MEAN					6,400	
HIGHEST DAILY MEAN	600	Mar 30	200	Mar 17	^b 0.00	Apr 5, 1997
LOWEST DAILY MEAN	0.22	Sep 24	0.10	Feb 23	0.00	Feb 1, 1974
ANNUAL SEVEN-DAY MINIMUM	0.26	Sep 21	0.12	Mar 7	0.00	Feb 1, 1974
MAXIMUM PEAK FLOW			250	Mar 17	8,000	Apr 7, 2001
MAXIMUM PEAK STAGE			^c 8.27	Mar 17	^c 12.33	Apr 7, 2001
ANNUAL RUNOFF (AC-FT)	11,000		6,400		31,200	
10 PERCENT EXCEEDS	45		25		85	
50 PERCENT EXCEEDS	2.9		2.0		5.5	
90 PERCENT EXCEEDS	0.89		0.21		0.08	

a Median of annual mean discharges, 24 ft³/s.

b No flow for many days in some years.

c 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 NW¹/₄ NW¹/₄ NW¹/₄ (revised) 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 mi². 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.

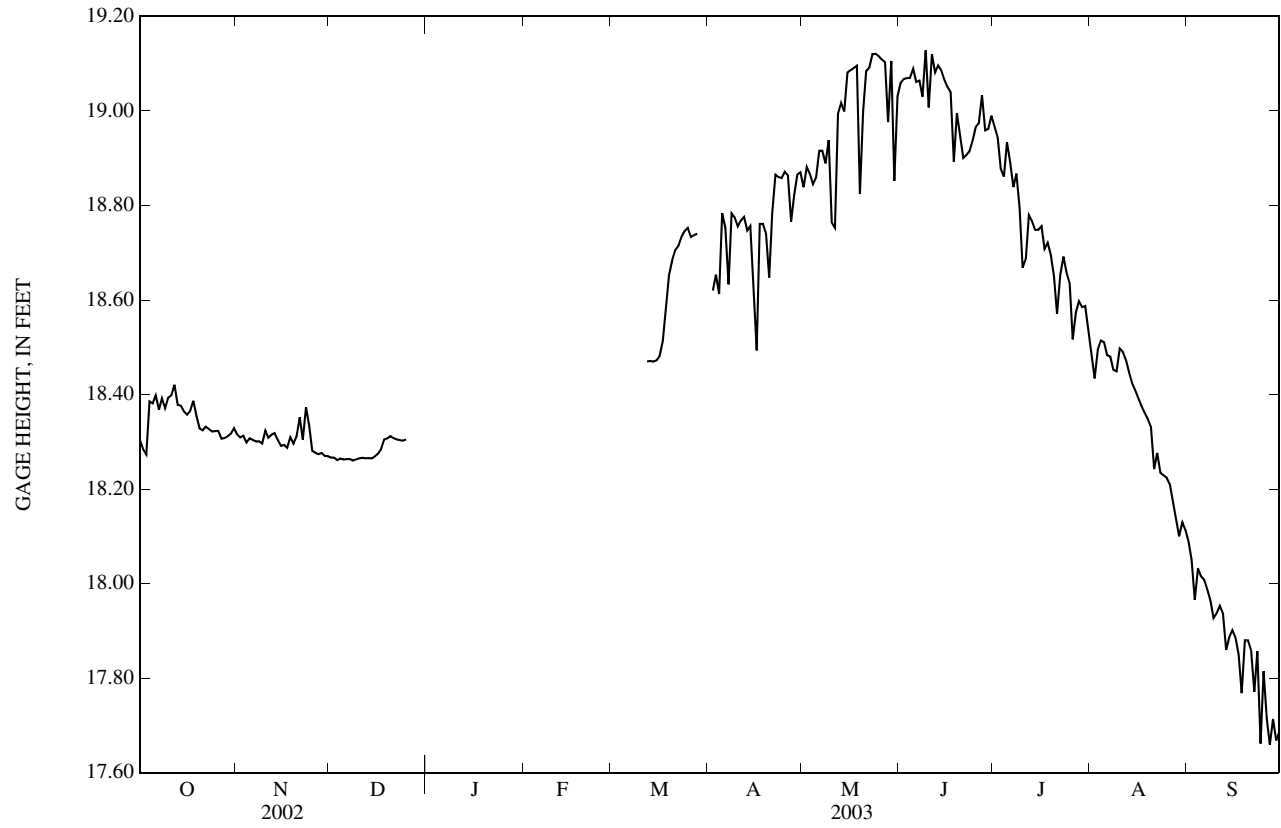
GAGE.--Water-stage recorder. Datum of gage is 1,697.93 ft above NGVD of 1929.

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

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.30	18.32	18.27	---	---	---	---	18.84	19.06	18.97	18.49	18.09
2	18.28	18.31	18.27	---	---	---	18.62	18.88	19.07	18.94	18.43	18.05
3	18.27	18.31	18.26	---	---	---	18.65	18.87	19.07	18.88	18.50	17.97
4	18.39	18.30	18.26	---	---	---	18.61	18.85	19.07	18.86	18.51	18.03
5	18.38	18.31	18.26	---	---	---	18.78	18.86	19.09	18.93	18.51	18.02
6	18.40	18.30	18.26	---	---	---	18.75	18.92	19.06	18.89	18.48	18.01
7	18.37	18.30	18.26	---	---	---	18.63	18.92	19.06	18.84	18.48	17.99
8	18.39	18.30	18.26	---	---	---	18.78	18.89	19.03	18.87	18.45	17.96
9	18.37	18.30	18.26	---	---	---	18.77	18.94	19.13	18.79	18.45	17.93
10	18.39	18.32	18.26	---	---	---	18.76	18.76	19.01	18.67	18.50	17.94
11	18.40	18.31	18.27	---	---	---	18.77	18.75	19.12	18.69	18.49	17.95
12	18.42	18.31	18.27	---	---	18.47	18.78	18.99	19.08	18.78	18.47	17.94
13	18.38	18.32	18.27	---	---	18.47	18.75	19.02	19.10	18.77	18.45	17.86
14	18.38	18.30	18.26	---	---	18.47	18.76	19.00	19.09	18.75	18.42	17.89
15	18.36	18.29	18.27	---	---	18.47	18.64	19.08	19.07	18.75	18.41	17.90
16	18.36	18.29	18.27	---	---	18.48	18.49	19.09	19.05	18.76	18.39	17.89
17	18.36	18.29	18.28	---	---	18.51	18.76	19.09	19.04	18.71	18.38	17.85
18	18.39	18.31	18.30	---	---	18.59	18.76	19.10	18.89	18.72	18.36	17.77
19	18.36	18.30	18.31	---	---	18.65	18.74	18.82	19.00	18.70	18.35	17.88
20	18.33	18.31	18.31	---	---	18.68	18.65	19.00	18.95	18.65	18.33	17.88
21	18.32	18.35	18.31	---	---	18.71	18.78	19.08	18.90	18.57	18.24	17.86
22	18.33	18.30	18.31	---	---	18.71	18.87	19.09	18.91	18.65	18.28	17.77
23	18.33	18.37	18.30	---	---	18.73	18.86	19.12	18.91	18.69	18.23	17.86
24	18.32	18.33	18.30	---	---	18.75	18.86	19.12	18.94	18.66	18.23	17.66
25	18.32	18.28	18.30	---	---	18.75	18.87	19.12	18.97	18.64	18.22	17.81
26	18.32	18.28	---	---	---	18.73	18.86	19.11	18.97	18.52	18.21	17.71
27	18.31	18.27	---	---	---	18.74	18.77	19.10	19.03	18.57	18.17	17.66
28	18.31	18.28	---	---	---	18.74	18.82	18.98	18.96	18.60	18.13	17.71
29	18.31	18.27	---	---	---	---	18.87	19.11	18.96	18.58	18.10	17.67
30	18.32	18.27	---	---	---	---	18.87	18.85	18.99	18.59	18.13	17.69
31	18.33	---	---	---	---	---	---	19.03	---	18.54	18.11	---
MEAN	18.35	18.30	---	---	---	---	---	18.98	19.02	18.73	18.35	17.87
MAX	18.42	18.37	---	---	---	---	---	19.12	19.13	18.97	18.51	18.09
MIN	18.27	18.27	---	---	---	---	---	18.75	18.89	18.52	18.10	17.66

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



06479500 BIG SIOUX RIVER AT WATERTOWN, SD

LOCATION.--Lat 44° 56'33", long 97° 08'45", in SW¹/₄ SW¹/₄ NW¹/₄ sec.13, T.117 N., R.53 W., Codington County, Hydrologic Unit 10170202, on right bank near downstream end of highway bridge over 453 Avenue, 1.7 mi downstream from inlet-outlet to Lake Kampeska, 7.1 mi upstream from Willow Creek, and 3.5 mi northwest of Watertown.

DRAINAGE AREA.--1,129 mi², of which 779 mi² is usually noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi² of the usually noncontributing area).

PERIOD OF RECORD.--October 1945 to September 1972 daily streamflow. October 1996 to September 1997 as crest-stage gage. October 1999 to current year.

REVISED RECORDS.--WDR SD-00-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,710.44 ft above NGVD of 1929. Prior to Oct. 15, 1958, nonrecording gage at same site and datum.

REMARKS.--Records good except those for Aug. 22 to Sept. 30, which are fair, and those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water is stored naturally offstream in Lake Kampeska (capacity, 35,500 acre-ft) during periods when river is rising and then naturally released, in part, when river is falling. 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.95	1.6	e1.5	e0.85	e0.06	0.00	e8.0	8.6	5.9	7.5	2.1	0.01
2	0.77	1.6	e0.80	e1.1	e0.03	0.00	e6.5	8.4	6.4	6.9	1.9	0.01
3	0.89	1.8	e0.80	e1.1	e0.02	0.00	5.3	7.8	7.1	6.1	1.6	0.01
4	3.0	1.8	e1.0	e1.2	e0.01	0.00	6.1	7.9	6.8	6.2	1.5	0.01
5	2.3	2.1	e1.2	e1.3	e0.01	0.00	4.1	9.5	7.9	6.8	1.8	0.01
6	2.8	2.1	e1.2	e1.4	e0.01	0.00	4.8	11	12	6.9	1.9	0.01
7	2.1	2.1	e1.2	e1.5	e0.01	0.00	5.5	11	12	6.0	1.8	0.01
8	1.9	2.2	e1.2	e1.6	e0.01	0.00	3.0	11	12	5.4	1.7	0.01
9	1.8	2.3	e1.1	e1.4	e0.01	0.00	2.6	16	11	6.0	1.9	0.01
10	1.8	e2.3	e1.2	e0.97	e0.01	0.00	2.5	18	11	5.6	2.8	0.02
11	2.1	e2.1	e1.3	e0.82	e0.01	0.00	2.0	19	9.9	5.3	1.9	0.03
12	2.2	2.2	e1.3	e0.74	e0.01	0.00	1.9	19	9.0	4.6	1.6	0.02
13	1.7	2.8	e1.4	e0.59	e0.01	e0.00	2.1	19	8.2	4.3	1.4	0.01
14	1.9	2.6	e1.5	e0.52	e0.01	e0.01	2.0	20	7.2	5.0	1.3	0.01
15	1.6	2.4	e1.6	e0.42	e0.01	e1.0	1.9	20	6.4	4.3	1.2	0.01
16	1.9	2.3	e1.7	e0.31	e0.01	e10	2.6	20	5.8	4.1	0.86	0.01
17	2.1	2.5	e1.8	e0.22	e0.02	e190	3.2	20	5.6	3.7	0.58	0.01
18	2.1	2.6	e1.8	e0.17	e0.01	e160	4.3	20	5.3	3.1	0.41	0.04
19	1.9	2.7	e1.6	e0.15	e0.02	e130	7.9	19	4.5	3.3	0.30	0.04
20	1.9	2.6	e1.4	e0.14	e0.03	e100	9.3	18	4.1	5.5	0.37	0.03
21	2.0	2.5	e0.94	e0.09	e0.02	e70	10	16	3.7	5.7	0.35	0.02
22	2.0	2.6	e0.72	e0.07	e0.02	e50	10	15	4.3	6.3	0.20	0.01
23	2.0	e2.3	e0.58	e0.05	e0.01	e40	10	15	4.2	5.8	0.10	0.01
24	2.1	e2.0	e0.55	e0.05	e0.00	e34	10	15	5.5	5.4	0.04	0.01
25	2.1	e1.5	e0.51	e0.05	e0.00	e28	10	14	11	4.5	0.04	0.01
26	2.3	e1.4	e0.46	e0.05	e0.00	e25	9.9	13	12	4.1	0.03	0.01
27	2.3	e1.6	e0.39	e0.07	e0.00	23	9.1	11	12	3.5	0.01	0.01
28	2.5	e1.8	e0.43	e0.06	e0.00	20	8.3	10	11	3.0	0.04	0.01
29	2.5	e1.8	e0.46	e0.05	---	19	8.4	8.9	9.5	3.0	0.06	0.01
30	2.3	e1.7	e0.54	e0.05	---	13	8.8	8.1	8.3	2.7	0.04	0.01
31	1.8	---	e0.77	e0.05	---	11	---	6.6	---	2.3	0.02	---
TOTAL	61.61	63.9	32.95	17.14	0.37	924.01	180.1	435.8	239.6	152.9	29.85	0.43
MEAN	1.99	2.13	1.06	0.55	0.013	29.8	6.00	14.1	7.99	4.93	0.96	0.014
MAX	3.0	2.8	1.8	1.6	0.06	190	10	20	12	7.5	2.8	0.04
MIN	0.77	1.4	0.39	0.05	0.00	0.00	1.9	6.6	3.7	2.3	0.01	0.01
AC-FT	122	127	65	34	0.7	1,830	357	864	475	303	59	0.9

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1972, 2000 - 2003, BY WATER YEAR (WY)

	3.58	3.98	2.40	0.85	1.38	40.2	151	83.3	60.2	34.0	17.9	3.90
MEAN												
MAX	33.6	42.6	18.6	6.99	9.86	215	885	367	418	332	159	40.9
(WY)	(1947)	(1947)	(1947)	(1972)	(1954)	(1946)	(2001)	(1962)	(1962)	(1962)	(1953)	(1972)
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.54	0.79	0.46	0.039	0.000	0.000
(WY)	(1960)	(1960)	(1956)	(1946)	(1946)	(1965)	(1959)	(1959)	(1959)	(1959)	(1959)	(1959)

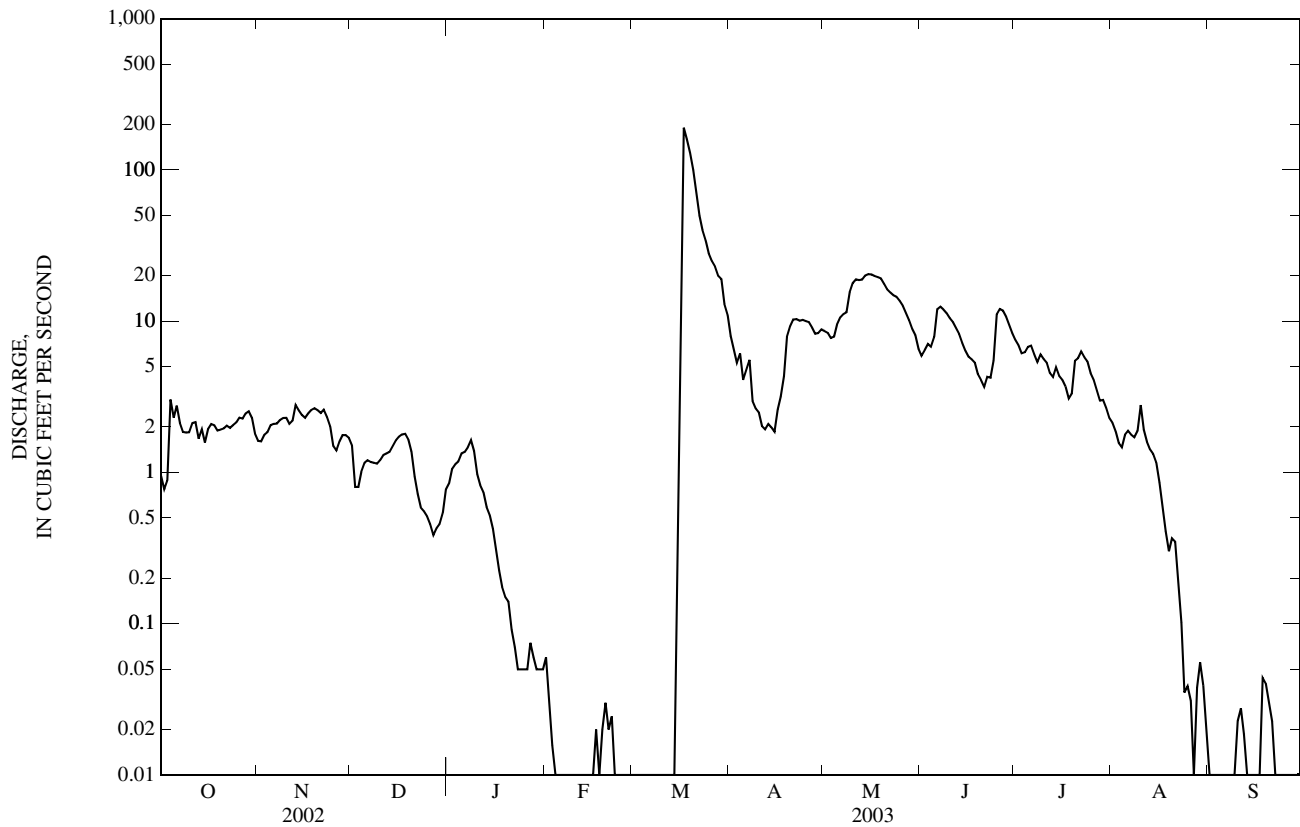
06479500 BIG SIOUX RIVER AT WATERTOWN, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1946-1972, 2000-2003	
ANNUAL TOTAL	4,577.61		2,138.66		33.5	
ANNUAL MEAN	12.5		5.86		116	
HIGHEST ANNUAL MEAN					0.20	
LOWEST ANNUAL MEAN					2,270	
HIGHEST DAILY MEAN	350	Mar 30	190	Mar 17	2,270	Apr 7, 2001
LOWEST DAILY MEAN	0.02	Aug 19	0.00	Feb 24	^a 0.00	Dec 9, 1945
ANNUAL SEVEN-DAY MINIMUM	0.07	Aug 1	0.00	Feb 24	0.00	Dec 9, 1945
MAXIMUM PEAK FLOW			200	Mar 17	5,800	Apr 6, 1997
MAXIMUM PEAK STAGE			^b 7.00	Mar 17	^b 12.49	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	9,080		4,240		24,270	
10 PERCENT EXCEEDS	36		12		87	
50 PERCENT EXCEEDS	2.0		1.9		2.0	
90 PERCENT EXCEEDS	0.41		0.01		0.00	

a No flow at times in most years.

b Backwater from ice.

c Estimated.



06479515 WILLOW CREEK NEAR WATERTOWN, SD

Location.--Lat 44° 55'08", long 97° 02'43", in NE¹/₄ NE¹/₄ NE¹/₄ 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 mi².

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.

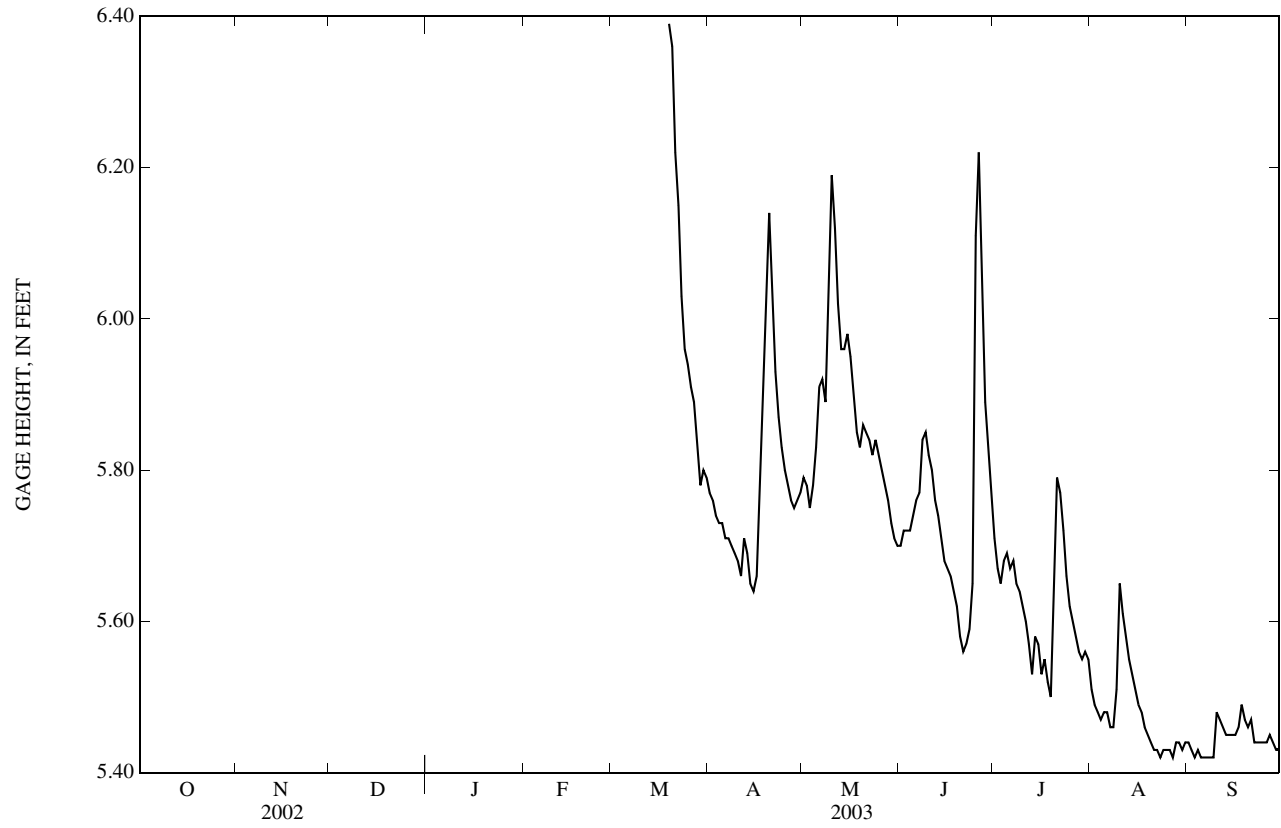
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,650 ft³/s, Apr. 5, 1997, gage height, 10.93 ft, from floodmark, at different site and datum; maximum gage height, 12.51 ft, Apr. 7, 2001, backwater from ice.

EXTREMES FOR CURRENT YEAR.--Maximum discharge for water year 2003, 100 ft³/s, Mar. 15, gage height, 9.01 ft, backwater from ice.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	5.77	5.79	5.70	5.71	5.51	5.44
2	---	---	---	---	---	---	5.76	5.78	5.72	5.67	5.49	5.43
3	---	---	---	---	---	---	5.74	5.75	5.72	5.65	5.48	5.42
4	---	---	---	---	---	---	5.73	5.78	5.72	5.68	5.47	5.43
5	---	---	---	---	---	---	5.73	5.83	5.74	5.69	5.48	5.42
6	---	---	---	---	---	---	5.71	5.91	5.76	5.67	5.48	5.42
7	---	---	---	---	---	---	5.71	5.92	5.77	5.68	5.46	5.42
8	---	---	---	---	---	---	5.70	5.89	5.84	5.65	5.46	5.42
9	---	---	---	---	---	---	5.69	6.03	5.85	5.64	5.51	5.42
10	---	---	---	---	---	---	5.68	6.19	5.82	5.62	5.65	5.48
11	---	---	---	---	---	---	5.66	6.12	5.80	5.60	5.61	5.47
12	---	---	---	---	---	---	5.71	6.02	5.76	5.57	5.58	5.46
13	---	---	---	---	---	---	5.69	5.96	5.74	5.53	5.55	5.45
14	---	---	---	---	---	---	5.65	5.96	5.71	5.58	5.53	5.45
15	---	---	---	---	---	---	5.64	5.98	5.68	5.57	5.51	5.45
16	---	---	---	---	---	---	5.66	5.95	5.67	5.53	5.49	5.45
17	---	---	---	---	---	---	5.75	5.90	5.66	5.55	5.48	5.46
18	---	---	---	---	---	---	5.86	5.85	5.64	5.52	5.46	5.49
19	---	---	---	---	---	6.39	6.03	5.83	5.62	5.50	5.45	5.47
20	---	---	---	---	---	6.36	6.14	5.86	5.58	5.68	5.44	5.46
21	---	---	---	---	---	6.22	6.03	5.85	5.56	5.79	5.43	5.47
22	---	---	---	---	---	6.15	5.93	5.84	5.57	5.77	5.43	5.44
23	---	---	---	---	---	6.03	5.87	5.82	5.59	5.72	5.42	5.44
24	---	---	---	---	---	5.96	5.83	5.84	5.65	5.66	5.43	5.44
25	---	---	---	---	---	5.94	5.80	5.82	6.11	5.62	5.43	5.44
26	---	---	---	---	---	5.91	5.78	5.80	6.22	5.60	5.43	5.44
27	---	---	---	---	---	5.89	5.76	5.78	6.01	5.58	5.42	5.45
28	---	---	---	---	---	5.84	5.75	5.76	5.89	5.56	5.44	5.44
29	---	---	---	---	---	5.78	5.76	5.73	5.82	5.55	5.44	5.43
30	---	---	---	---	---	5.80	5.77	5.71	5.76	5.56	5.43	5.43
31	---	---	---	---	---	5.79	---	5.70	---	5.55	5.44	---
MEAN	---	---	---	---	---	---	5.78	5.87	5.76	5.62	5.48	5.44
MAX	---	---	---	---	---	---	6.14	6.19	6.22	5.79	5.65	5.49
MIN	---	---	---	---	---	---	5.64	5.70	5.56	5.50	5.42	5.42

06479515 WILLOW CREEK NEAR WATERTOWN, SD—Continued



06479520 BIG SIOUX RIVER BELOW WATERTOWN, SD

LOCATION.--Lat 44° 50'52" (revised), long 97° 02'57", in NE¹/₄ NE¹/₄ NE¹/₄ 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 mi², of which 1,391 mi² usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi² 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e8.6	e10	e12	e7.0	e3.2	e2.7	e21	27	16	24	6.3	5.5
2	8.6	e10	e11	e7.1	e2.7	e2.7	20	26	20	21	5.9	5.8
3	8.7	e10	e10	e7.1	e2.7	e2.5	19	25	19	19	5.6	5.6
4	37	10	e10	e7.2	e2.7	e2.6	22	31	18	33	5.5	5.3
5	14	10	e9.2	e7.2	e2.7	e2.6	24	34	21	19	6.6	5.4
6	12	9.9	e8.8	e7.2	e2.7	e2.8	22	33	35	18	5.9	5.3
7	11	10	e9.0	e7.2	e2.7	e2.8	19	35	27	15	5.8	5.3
8	11	10	e9.2	e7.1	e2.4	e2.5	22	35	28	13	5.8	5.2
9	11	10	e9.3	e7.1	e2.1	e1.9	22	76	27	16	7.2	5.3
10	13	10	e10	e7.6	e2.1	e2.0	20	65	26	14	14	9.6
11	12	e10	e11	e7.6	e2.2	e2.5	18	65	23	12	8.1	7.5
12	12	10	e12	e7.1	e2.2	e3.3	16	56	22	9.7	7.3	5.7
13	11	10	e12	e7.1	e2.1	e5.0	19	53	21	8.2	6.9	5.6
14	12	10	e12	e6.6	e2.0	e10	22	59	20	14	6.5	5.2
15	11	10	e12	e5.7	e2.1	e200	17	54	21	8.1	6.7	5.3
16	11	10	e12	e5.7	e2.1	e400	17	52	22	6.7	6.2	5.3
17	12	12	e12	e4.7	e2.1	e300	26	49	20	6.8	5.9	5.6
18	11	11	e12	e4.2	e2.1	e400	28	46	18	6.1	6.1	11
19	10	10	e11	e4.7	e2.4	e350	52	44	15	6.0	6.5	6.7
20	10	11	e8.5	e4.7	e2.4	e170	52	38	15	22	6.5	5.9
21	10	11	e6.5	e3.7	e2.4	e130	49	38	15	9.7	6.0	6.9
22	10	13	e5.1	e3.7	e2.4	99	42	41	17	10	5.5	6.3
23	10	e12	e4.7	e3.2	e2.4	75	37	33	16	14	5.6	5.5
24	10	e14	e5.1	e3.7	e2.4	60	33	32	27	8.4	5.7	5.7
25	11	e14	e5.1	e3.2	e2.7	e42	32	30	108	7.3	5.6	5.3
26	10	e14	e5.5	e3.2	e2.5	e34	32	28	77	7.1	5.7	5.9
27	10	e14	e6.8	e3.2	e2.5	e32	33	26	62	6.7	5.2	5.3
28	10	e13	e6.8	e3.2	e2.5	e27	28	23	49	6.6	8.2	5.2
29	e10	e13	e6.6	e2.7	---	e26	28	21	38	6.4	6.4	5.1
30	e10	e12	e6.6	e3.2	---	e25	28	21	30	8.8	5.7	4.9
31	e10	---	e6.6	e3.2	---	e23	---	16	---	6.5	5.6	---
TOTAL	357.9	333.9	278.4	166.1	67.5	2,438.9	820	1,212	873	383.1	200.5	178.2
MEAN	11.5	11.1	8.98	5.36	2.41	78.7	27.3	39.1	29.1	12.4	6.47	5.94
MAX	37	14	12	7.6	3.2	400	52	76	108	33	14	11
MIN	8.6	9.9	4.7	2.7	2.0	1.9	16	16	15	6.0	5.2	4.9
AC-FT	710	662	552	329	134	4,840	1,630	2,400	1,730	760	398	353

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2003, BY WATER YEAR (WY)

MEAN	68.9	76.8	49.6	28.4	63.6	142	622	352	182	89.7	56.7	39.6
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	8.50	5.58	4.80	2.12	6.06	15.6	19.9	20.9	11.0	6.47	4.53
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2000)	(2000)	(2000)	(2002)	(2003)	(2000)

06479520 BIG SIOUX RIVER BELOW WATERTOWN, SD—Continued

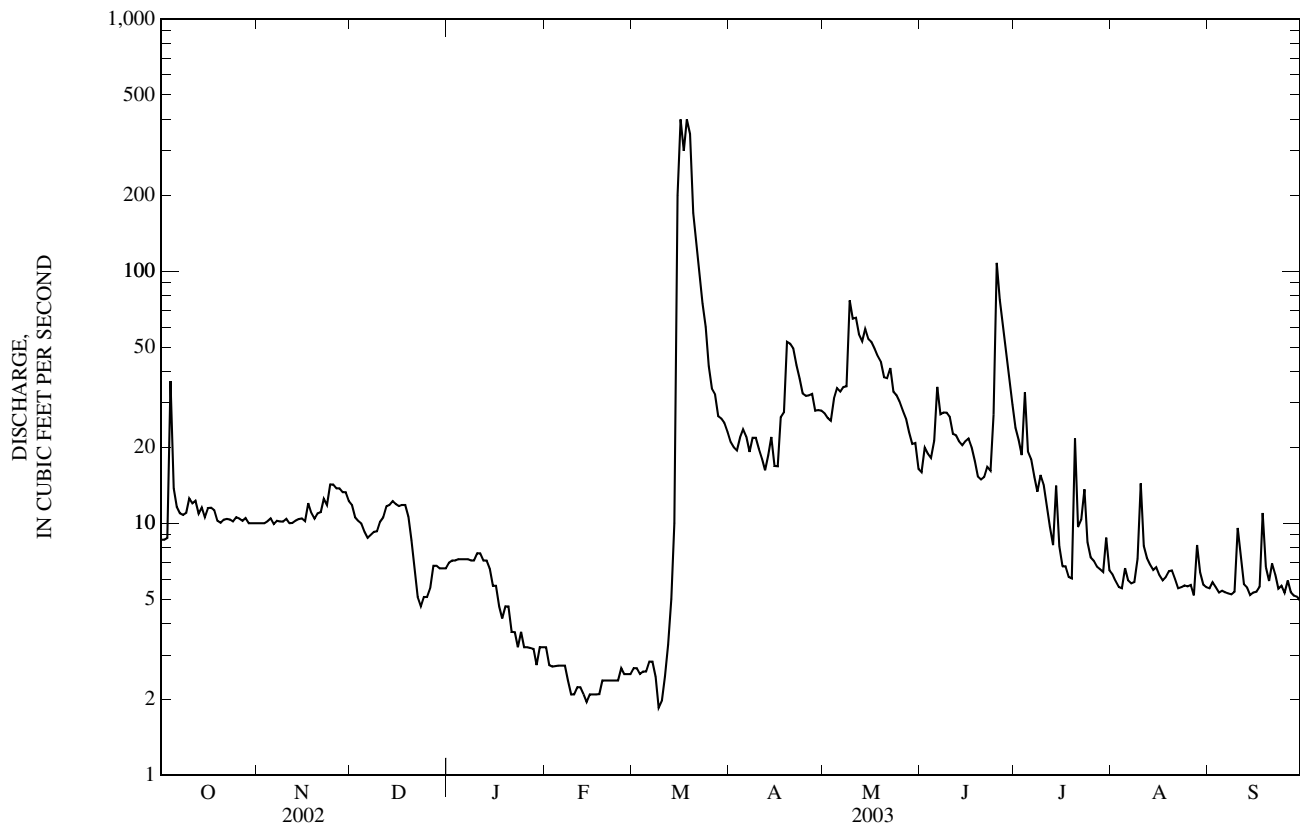
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1995 - 2003	
ANNUAL TOTAL	11,173.9		7,309.5		147	
ANNUAL MEAN	30.6		20.0		311	
HIGHEST ANNUAL MEAN					12.2	
LOWEST ANNUAL MEAN					4,350	
HIGHEST DAILY MEAN	400	Aug 21	400	Mar 16	1997	2000
LOWEST DAILY MEAN	2.8	Jan 29	1.9	Mar 9	Apr 11, 1997	Feb 10, 2001
ANNUAL SEVEN-DAY MINIMUM	2.9	Jan 29	2.1	Feb 12	1.0	Feb 10, 2001
MAXIMUM PEAK FLOW			^a 600	Mar 18	^b 6,700	Apr 11, 1997
MAXIMUM PEAK STAGE			^c 9.41	Mar 15	^c 13.13	Apr 2, 1997
ANNUAL RUNOFF (AC-FT)	22,160		14,500		106,700	
10 PERCENT EXCEEDS	78		36		384	
50 PERCENT EXCEEDS	12		10		37	
90 PERCENT EXCEEDS	5.7		2.7		6.0	

a Gage height, 9.18 ft, backwater from ice.

b Gage height, 12.99 ft.

c Backwater from ice.

e Estimated.



06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD

LOCATION.--Lat 44° 43' 54", long 97° 02' 39", in SW¹/₄ SW¹/₄ 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 mi², of which 1,427 mi² usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi² 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	e22	e16	e10	e4.0	e3.2	32	35	20	51	5.3	3.5
2	12	e21	e15	e10	e4.0	e3.0	30	33	22	44	5.0	3.2
3	12	e19	e14	e10	e4.0	e3.0	27	31	e22	40	5.0	3.2
4	27	16	e13	e10	e4.0	e3.0	28	32	e22	36	4.5	2.4
5	40	15	e12	e10	e4.0	e3.0	29	38	e23	52	4.5	2.7
6	22	15	e12	e10	e3.5	e3.2	28	38	e34	32	5.5	3.0
7	19	14	e12	e9.5	e3.5	e3.2	25	37	e31	28	5.0	2.9
8	18	15	e13	e9.0	e3.0	e3.0	24	37	e31	21	4.6	2.8
9	18	15	e13	e9.0	e3.0	e2.5	26	67	e31	18	5.0	2.9
10	18	15	e14	e9.0	e3.0	e2.7	25	66	e30	20	10	4.6
11	18	e15	e14	e9.0	e3.0	e2.9	23	67	e26	17	8.4	7.0
12	18	e15	e15	e9.0	e3.0	e3.0	22	60	e25	15	6.0	5.4
13	17	14	e15	e8.5	e2.5	e3.5	21	55	e24	13	5.3	4.3
14	16	14	e15	e7.5	e2.5	e10	26	60	e23	12	4.9	4.3
15	16	14	e15	e7.0	e2.5	e100	23	55	e21	18	4.1	4.5
16	16	e14	e15	e6.5	e2.5	e600	21	53	e22	11	4.0	5.5
17	17	e14	e15	e6.0	e2.6	e450	29	51	e21	8.3	3.6	5.8
18	16	e14	e15	e5.5	e2.7	e300	33	48	e20	7.4	3.4	6.2
19	16	15	e14	e5.5	e2.9	e280	52	48	e17	6.6	3.6	11
20	15	15	e12	e5.0	e3.0	e230	56	42	e17	11	3.8	7.2
21	15	16	e9.0	e4.8	e3.0	186	58	40	e16	26	3.4	7.0
22	15	17	e8.0	e4.5	e3.0	141	51	41	e17	12	3.3	7.0
23	15	e17	e8.0	e4.3	e3.0	103	46	41	e17	18	3.5	7.0
24	16	e18	e8.0	e4.1	e3.0	62	43	37	e30	12	3.5	5.8
25	16	e19	e8.5	e4.0	e3.0	47	40	36	e115	9.2	3.7	5.9
26	16	e19	e9.0	e4.0	e3.0	41	40	32	145	8.4	3.6	5.5
27	16	e19	e9.5	e4.0	e3.0	40	40	30	116	7.5	3.4	5.3
28	16	e19	e10	e4.0	e3.1	37	38	28	85	7.0	3.6	5.7
29	16	e18	e11	e4.0	---	35	36	24	71	6.8	5.1	5.3
30	e18	e17	e11	e4.5	---	33	38	23	61	7.3	4.0	5.0
31	e20	---	e10	e4.5	---	33	---	22	---	6.9	3.6	---
TOTAL	543	490	381.0	212.7	87.3	2,767.2	1,010	1,307	1,155	582.4	142.2	151.9
MEAN	17.5	16.3	12.3	6.86	3.12	89.3	33.7	42.2	38.5	18.8	4.59	5.06
MAX	40	22	16	10	4.0	600	58	67	145	52	10	11
MIN	12	14	8.0	4.0	2.5	2.5	21	22	16	6.6	3.3	2.4
AC-FT	1,080	972	756	422	173	5,490	2,000	2,590	2,290	1,160	282	301

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2003, BY WATER YEAR (WY)

	MEAN	44.9	44.4	28.5	16.0	32.9	141	378	202	137	90.3	65.0	43.5
MAX	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	0.039	0.000	0.000	0.035	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 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1977 - 2003	
ANNUAL TOTAL	14,555.9		8,829.7		^a 102	
ANNUAL MEAN	39.9		24.2		333	
HIGHEST ANNUAL MEAN					8.15	
LOWEST ANNUAL MEAN					4,090	
HIGHEST DAILY MEAN	600	Mar 30	600	Mar 16	^b 0.00	
LOWEST DAILY MEAN	4.5	Aug 19	2.4	Sep 4	0.00	
ANNUAL SEVEN-DAY MINIMUM	5.4	Aug 14	2.6	Feb 13	0.00	
MAXIMUM PEAK FLOW			750	Mar 16	^c 4,300	
MAXIMUM PEAK STAGE			^d 9.63	Mar 16	^f 13.19	
ANNUAL RUNOFF (AC-FT)	28,870		17,510		73,840	
10 PERCENT EXCEEDS	83		43		257	
50 PERCENT EXCEEDS	18		15		23	
90 PERCENT EXCEEDS	7.6		3.2		1.8	

a Median of annual mean discharges, 59 ft³/s.

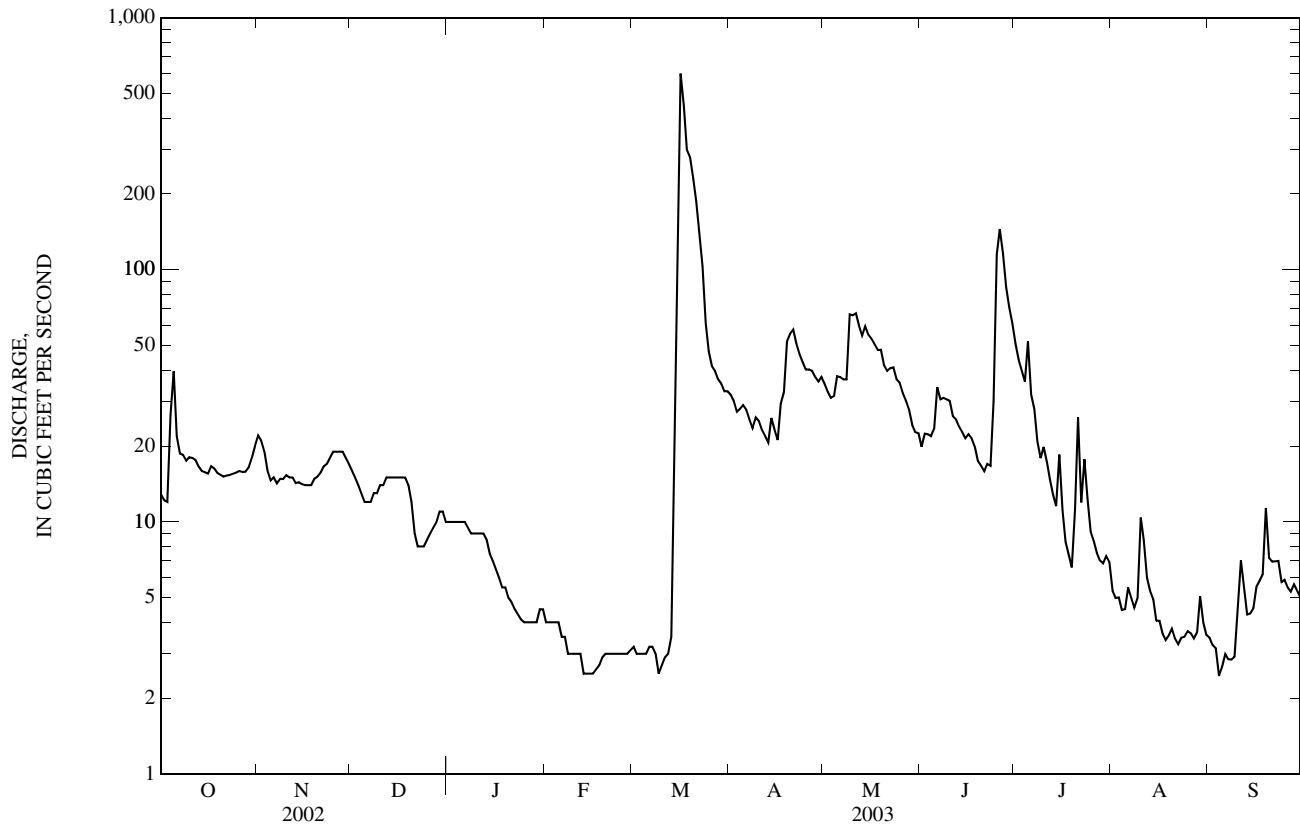
b No flow for many days in some years.

c Gage height, 12.87 ft, backwater from ice.

d From floodmark, 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 SE¹/₄ NE¹/₄ NE¹/₄ 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	e33	e26	e17	e5.2	e4.0	e70	63	25	46	19	9.2
2	18	e38	e24	e17	e5.1	e3.6	60	59	27	42	19	7.6
3	19	e36	e20	e17	e5.0	e3.5	53	56	26	39	17	6.6
4	37	e33	e19	e17	e5.0	e3.5	52	55	25	38	17	5.5
5	34	31	e18	e17	e5.0	e3.5	54	59	27	38	22	5.0
6	47	32	e19	e17	e4.5	e4.0	47	63	35	39	21	4.8
7	37	28	e19	e16	e4.5	e3.8	49	64	34	38	18	4.1
8	33	28	e20	e15	e4.0	e3.1	45	64	39	37	18	4.0
9	30	27	e20	e15	e4.0	e2.8	43	78	34	39	20	3.9
10	30	e27	e20	e15	e4.0	e3.0	44	98	35	33	23	11
11	29	e27	e20	e15	e3.8	e3.1	43	112	32	e33	23	15
12	30	e27	e20	e15	e3.5	e3.6	40	110	30	e32	26	13
13	27	e27	e21	e14	e3.5	e4.1	37	103	28	e31	25	12
14	27	27	e21	e12	e3.5	e4.5	39	100	26	e30	23	12
15	26	26	e21	e11	e3.5	e6.0	38	96	25	30	21	9.9
16	27	e31	e21	e9.5	e3.2	e50	42	92	23	25	20	7.7
17	27	e29	e21	e9.0	e3.0	e800	45	86	23	28	17	7.3
18	28	e28	e21	e8.5	e3.2	e700	47	80	22	25	15	11
19	27	27	e19	e8.0	e3.3	513	64	78	19	23	15	11
20	27	26	e17	e7.5	e3.8	386	78	69	18	31	14	10
21	27	26	e15	e7.3	e3.8	328	97	61	18	28	13	13
22	26	26	e12	e7.0	e3.7	262	100	60	24	31	11	13
23	26	e25	e12	e6.0	e3.7	215	89	58	22	33	10	11
24	26	e22	e13	e5.5	e3.6	e190	80	61	21	28	9.7	11
25	26	e20	e14	e5.0	e3.6	e190	74	51	24	30	9.0	9.3
26	27	e25	e15	e4.9	e3.5	e160	67	53	29	27	8.8	9.5
27	26	e25	e16	e5.2	e3.6	e140	66	49	86	25	7.1	8.5
28	26	e25	e17	e5.1	e3.8	e120	62	45	75	23	8.4	9.8
29	28	e28	e17	e5.0	---	e100	62	39	61	23	8.6	8.2
30	e32	e26	e16	e5.5	---	e90	63	32	52	24	8.0	7.8
31	e30	---	e16	e5.5	---	e85	---	27	---	20	7.6	---
TOTAL	880	836	570	334.5	109.9	4,385.1	1,750	2,121	965	969	494.2	271.7
MEAN	28.4	27.9	18.4	10.8	3.92	141	58.3	68.4	32.2	31.3	15.9	9.06
MAX	47	38	26	17	5.2	800	100	112	86	46	26	15
MIN	18	20	12	4.9	3.0	2.8	37	27	18	20	7.1	3.9
AC-FT	1,750	1,660	1,130	663	218	8,700	3,470	4,210	1,910	1,920	980	539

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

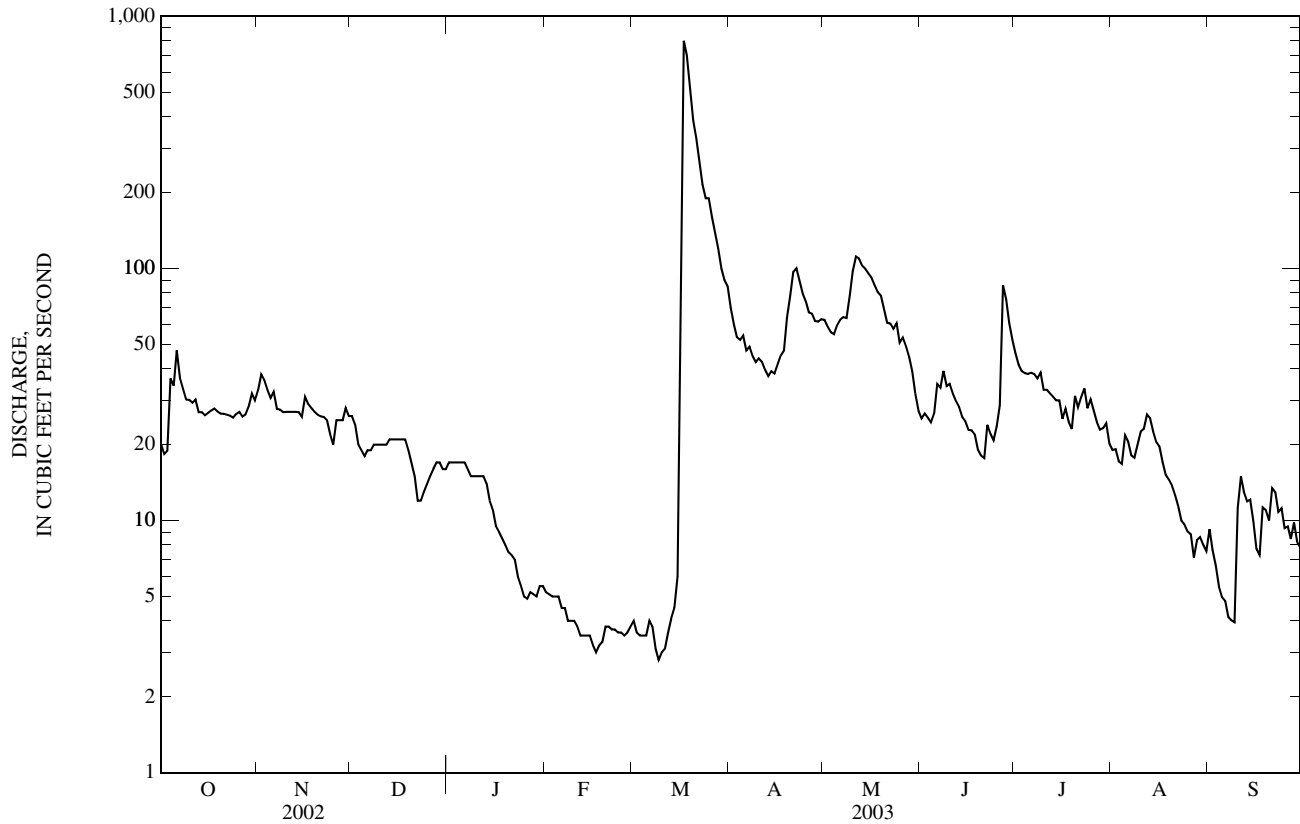
MEAN	67.9	53.7	50.2	23.5	37.0	99.0	773	583	412	253	175	96.8
MAX	160	110	128	59.4	107	151	1,986	1,477	1,112	694	451	256
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)
MIN	15.3	22.9	3.76	0.39	0.18	4.56	58.3	68.4	32.2	31.3	15.9	9.06
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)

06479770 BIG SIOUX RIVER NEAR BRUCE, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2001 - 2003	
ANNUAL TOTAL	32,770		13,686.4		219	
ANNUAL MEAN	89.8		37.5		502	
HIGHEST ANNUAL MEAN					37.5	
LOWEST ANNUAL MEAN					3,540	
HIGHEST DAILY MEAN	1,500	Mar 30	800	Mar 17	3,540	Apr 9, 2001
LOWEST DAILY MEAN	12	Aug 19	2.8	Mar 9	0.10	Feb 10, 2001
ANNUAL SEVEN-DAY MINIMUM	14	Aug 14	3.3	Feb 13	0.14	Feb 8, 2001
MAXIMUM PEAK FLOW			850	Mar 17	3,810	Apr 9, 2001
MAXIMUM PEAK STAGE			^a 7.54	Mar 17	10.60	Apr 9, 2001
ANNUAL RUNOFF (AC-FT)	65,000		27,150		158,600	
10 PERCENT EXCEEDS	231		68		660	
50 PERCENT EXCEEDS	50		24		42	
90 PERCENT EXCEEDS	19		4.1		3.3	

a From floodmark.

e Estimated.



06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD

LOCATION.--Lat 44° 10'48", long 96° 44'55", in NW¹/₄ NW¹/₄ 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 mi², of which 1,479 mi² usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi² of the usually noncontributing area).

WATER-DISCHARGE RECORDS

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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	46	e45	e35	e11	e8.5	111	166	83	69	32	10
2	30	48	e40	e35	e12	e8.0	110	175	89	62	29	10
3	31	47	e40	e35	e12	e8.0	105	169	93	57	27	9.7
4	55	55	e35	e35	e10	e8.0	100	168	88	54	26	9.4
5	83	58	e35	e35	e9.0	e8.0	96	175	85	51	34	9.5
6	78	59	e40	e35	e8.5	e8.0	93	179	89	49	37	9.1
7	72	55	e40	e36	e8.5	e8.0	94	177	96	48	33	8.2
8	70	54	e40	e34	e8.5	e7.5	92	173	100	54	29	7.7
9	64	54	e45	e34	e8.0	e7.0	88	196	96	66	26	7.9
10	59	54	e50	e32	e8.0	e7.5	90	217	99	65	26	21
11	56	48	e50	e30	e8.0	e8.0	88	238	96	55	26	25
12	54	50	e55	e27	e8.0	e8.0	86	254	91	48	25	29
13	51	52	e55	e25	e8.0	e8.5	83	252	84	45	24	23
14	50	54	e55	e23	e8.0	e10	83	248	78	44	24	17
15	49	53	e55	e19	e8.0	e15	85	234	72	42	24	14
16	50	46	e50	e17	e8.0	e90	99	222	68	40	21	14
17	50	45	e50	e16	e8.5	e650	132	209	64	39	19	13
18	50	51	e50	e15	e8.0	e800	153	196	61	37	17	20
19	50	53	e50	e14	e8.5	873	209	187	57	37	16	19
20	50	54	e48	e13	e9.0	845	245	168	53	38	20	15
21	50	53	e45	e12	e8.5	503	249	154	51	38	15	16
22	49	51	e50	e11	e8.5	390	246	146	57	40	15	16
23	48	51	e50	e10	e8.0	311	229	139	65	37	13	15
24	48	44	e45	e9.5	e7.5	256	209	132	60	38	12	15
25	48	44	e40	e8.5	e8.0	218	190	130	68	37	12	14
26	49	44	e35	e8.0	e8.0	183	175	122	65	34	12	14
27	50	e44	e35	e8.5	e8.5	164	162	114	61	35	11	15
28	51	e45	e40	e9.0	e8.5	145	152	108	78	33	11	13
29	52	e45	e35	e9.5	---	130	147	101	86	33	11	13
30	55	e45	e35	e10	---	121	148	95	78	39	11	13
31	48	---	e35	e10	---	116	---	86	---	38	11	---
TOTAL	1,632	1,502	1,373	651.0	243.0	5,923.0	4,149	5,330	2,311	1,402	649	435.5
MEAN	52.6	50.1	44.3	21.0	8.68	191	138	172	77.0	45.2	20.9	14.5
MAX	83	59	55	36	12	873	249	254	100	69	37	29
MIN	30	44	35	8.0	7.5	7.0	83	86	51	33	11	7.7
AC-FT	3,240	2,980	2,720	1,290	482	11,750	8,230	10,570	4,580	2,780	1,290	864

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2003, BY WATER YEAR (WY)

MEAN	144	119	72.5	38.6	71.1	491	955	563	587	341	201	155
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	0.039	0.094	0.088	0.000	0.000	1.45	27.3	21.4	13.5	0.94	0.015	0.011
(WY)	(1977)	(1977)	(1977)	(1977)	(1956)	(1975)	(1959)	(1959)	(1976)	(1976)	(1976)	(1976)

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1954 - 2003	
ANNUAL TOTAL	70,192		25,600.5		^a 312	
ANNUAL MEAN	192		70.1		1,174	
HIGHEST ANNUAL MEAN					15.5	
LOWEST ANNUAL MEAN					31,200	
HIGHEST DAILY MEAN	2,290	Apr 2	873	Mar 19	0.00	Apr 9, 1969
LOWEST DAILY MEAN	29	Aug 19	7.0	Mar 9	0.00	Jan 18, 1956
ANNUAL SEVEN-DAY MINIMUM	30	Sep 22	7.7	Mar 4	0.00	Jan 18, 1956
MAXIMUM PEAK FLOW			^c 965	Mar 20	33,900	Apr 9, 1969
MAXIMUM PEAK STAGE			^d 5.92	Mar 18	14.77	Apr 9, 1969
ANNUAL RUNOFF (AC-FT)	139,200		50,780		225,800	
10 PERCENT EXCEEDS	536		168		811	
50 PERCENT EXCEEDS	71		45		69	
90 PERCENT EXCEEDS	36		8.5		5.0	

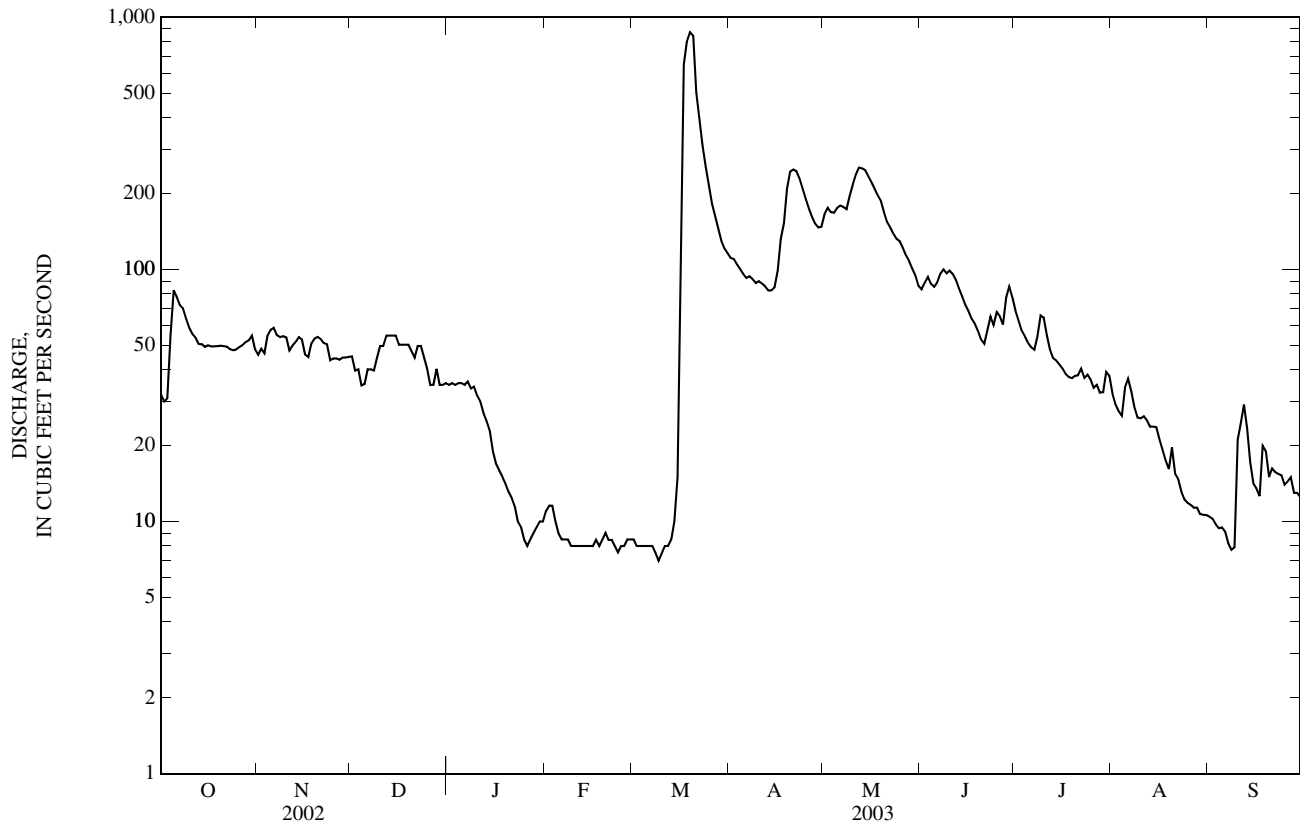
a Median of annual mean discharges, 180 ft³/s.

b No flow at times in 1956, 1976, 1977, and 1982.

c Gage height, 5.78 ft.

d Backwater from ice.

e Estimated.



06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1967 to September 1969, October 1969 to September 1973 (partial-record station), October 2001 to current year. Sediment records: Periodic samples taken in 1967, 1970, October 1970 to September 1973, and October 2001 to September 2002 (discontinued).

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, excellent; specific conductance, good; pH, good except those for Sept. 3 to Sept. 15, which are fair; dissolved oxygen, generally poor; and turbidity, good except those for June 10 to July 23, 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.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	17.6	14.6	16.1	1.6	0.0	0.6	0.6	0.1	0.3	0.2	0.1	0.1
2	14.6	10.9	11.9	1.7	0.2	0.9	0.5	0.1	0.2	0.2	0.1	0.1
3	11.2	10.0	10.6	3.4	0.5	1.8	0.2	0.1	0.1	0.2	0.1	0.1
4	12.2	9.8	10.9	3.2	1.1	2.2	0.2	0.1	0.1	0.2	0.1	0.1
5	11.8	8.8	10.3	2.6	1.8	2.2	0.2	0.1	0.1	0.2	0.1	0.1
6	11.0	7.6	9.6	4.5	0.9	2.6	0.2	0.1	0.1	0.3	0.1	0.2
7	10.5	6.0	8.3	6.3	2.1	4.2	0.2	0.1	0.1	0.3	0.1	0.2
8	12.4	9.1	10.6	5.9	3.6	4.6	0.2	0.1	0.1	0.3	0.0	0.1
9	11.2	7.2	9.5	6.8	3.4	5.0	0.2	0.1	0.1	0.5	0.0	0.1
10	15.2	9.4	12.0	5.8	1.3	3.4	0.3	0.1	0.1	0.7	0.1	0.4
11	17.0	12.4	14.6	2.6	0.2	1.4	0.3	0.1	0.1	0.7	0.2	0.5
12	15.2	8.8	11.9	4.6	1.1	2.9	0.3	0.1	0.2	0.7	0.1	0.4
13	10.4	5.8	8.1	6.0	2.5	4.2	0.3	0.1	0.2	1.0	0.2	0.6
14	11.5	6.7	9.0	5.1	2.7	4.0	0.3	0.1	0.2	1.1	0.2	0.7
15	10.4	6.7	8.6	2.7	0.8	1.9	0.3	0.1	0.1	0.9	0.2	0.6
16	8.7	5.7	6.6	2.5	0.1	1.4	0.2	0.1	0.1	0.9	0.1	0.5
17	8.3	4.7	6.4	2.7	0.2	1.5	0.2	0.1	0.1	0.7	0.0	0.4
18	8.9	6.9	7.7	4.3	1.4	2.7	0.2	0.1	0.1	0.9	0.0	0.4
19	7.3	5.3	6.2	4.7	1.5	3.2	0.2	0.1	0.1	1.0	0.1	0.6
20	6.8	3.5	5.1	5.4	3.1	4.2	0.2	0.1	0.1	1.2	---	---
21	5.9	4.2	5.0	4.2	2.7	3.6	0.3	0.1	0.2	1.6	0.6	1.1
22	4.7	3.3	4.0	3.2	0.7	2.1	0.3	0.1	0.1	1.3	0.4	0.9
23	3.4	1.6	2.6	3.0	1.1	2.2	0.3	0.1	0.1	0.7	0.0	0.4
24	3.1	1.1	2.2	1.8	0.1	0.6	0.3	0.1	0.1	0.3	0.0	0.1
25	4.8	2.7	3.5	0.7	0.2	0.4	0.3	0.1	0.1	0.0	0.0	0.0
26	6.6	2.9	4.5	0.5	0.2	0.3	0.3	0.1	0.1	0.0	0.0	0.0
27	5.2	3.8	4.4	0.7	0.2	0.4	0.3	0.1	0.1	0.0	0.0	0.0
28	4.4	3.3	3.9	0.7	0.2	0.4	0.3	0.1	0.1	0.0	0.0	0.0
29	4.6	3.6	4.3	0.8	0.0	0.3	0.3	0.0	0.1	0.0	0.0	0.0
30	3.6	1.1	2.2	0.4	0.0	0.2	0.2	0.0	0.1	0.4	0.0	0.0
31	2.2	0.1	1.0	---	---	---	0.3	0.1	0.1	1.0	0.0	0.4
MONTH	17.6	0.1	7.5	6.8	0.0	2.2	0.6	0.0	0.1	1.6	---	---

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	894	887	891	665	581	625	900	868	889	1,150	1,130	1,140
2	892	852	872	678	591	652	906	874	890	1,160	1,120	1,140
3	883	852	871	782	672	735	941	894	924	1,160	1,100	1,130
4	895	871	885	813	738	782	974	936	957	1,140	1,110	1,130
5	907	885	897	841	806	821	964	903	926	1,170	1,140	1,150
6	909	883	898	869	818	844	953	886	918	1,190	1,160	1,170
7	911	878	899	885	834	865	935	806	896	1,190	1,150	1,180
8	878	855	865	884	854	864	946	732	879	1,210	1,170	1,200
9	879	861	872	857	745	788	980	813	928	1,230	1,200	1,210
10	902	863	885	835	763	805	994	909	964	1,210	953	1,040
11	897	874	889	847	783	826	1,020	869	971	969	914	947
12	890	854	880	906	847	885	991	666	900	983	923	952
13	894	870	884	921	885	903	968	770	918	928	904	918
14	883	873	876	926	898	913	975	942	962	955	925	944
15	886	873	881	913	877	898	982	944	964	962	932	947
16	898	879	889	918	878	902	983	949	970	990	947	970
17	915	895	904	933	901	921	1,010	968	993	1,020	969	1,010
18	917	899	907	945	828	911	1,030	1,000	1,020	1,030	932	969
19	927	904	913	944	839	906	1,040	1,020	1,030	993	961	980
20	947	914	928	949	881	929	1,030	967	988	1,030	986	1,020
21	991	941	960	939	914	928	1,060	982	1,010	1,020	973	990
22	992	914	948	939	892	921	1,070	1,040	1,060	1,010	986	1,010
23	951	826	908	921	901	909	1,070	1,060	1,060	1,040	1,010	1,030
24	860	807	846	921	892	904	1,100	1,070	1,080	1,050	1,020	1,030
25	865	792	835	902	872	888	1,120	1,080	1,100	1,070	1,040	1,060
26	857	810	837	932	901	922	1,130	1,090	1,110	1,070	1,050	1,060
27	840	812	829	947	929	935	1,150	1,120	1,130	1,100	1,020	1,080
28	879	818	849	972	933	944	1,140	1,090	1,110	1,090	1,030	1,070
29	847	818	827	985	920	968	1,140	1,110	1,120	1,090	1,040	1,070
30	873	614	783	942	908	920	1,150	1,120	1,130	1,110	1,090	1,090
31	---	---	---	932	859	909	1,160	1,110	1,130	---	---	---
MONTH	992	614	880	985	581	868	1,160	666	998	1,230	904	1,050

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD—Continued

DISSOLVED OXYGEN, WATER, UNFILTERED, MILLIGRAMS PER LITER—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

[illegible]

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD—Continued

TURBIDITY, WATER, UNFILTERED, NEPHELOMETRIC TURBIDITY UNITS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	59	24	31	67	26	37	109	56	76	---	---	---
2	73	24	40	81	33	45	97	53	75	78	---	---
3	76	20	37	102	36	56	96	50	69	77	30	48
4	64	23	32	112	44	58	87	53	68	65	34	41
5	67	23	34	106	42	61	86	52	64	51	31	41
6	62	31	39	---	---	---	92	43	61	121	36	43
7	82	34	45	---	---	---	89	38	60	84	---	---
8	94	33	45	---	---	---	92	38	60	53	31	41
9	99	37	49	---	61	---	102	45	63	54	28	39
10	85	39	50	94	60	76	97	32	56	198	---	---
11	70	37	47	104	57	72	78	38	58	---	---	---
12	64	44	52	84	47	67	81	49	65	---	---	---
13	73	40	53	134	44	70	98	51	62	78	31	46
14	76	37	53	98	47	70	80	41	59	59	29	42
15	77	35	50	115	41	65	86	41	59	56	27	38
16	62	38	50	125	40	73	---	56	---	46	27	37
17	71	33	48	---	---	---	---	---	---	55	30	40
18	86	36	48	---	---	---	---	---	---	57	27	40
19	99	38	51	---	---	---	---	---	---	35	21	27
20	90	36	48	---	---	---	---	35	---	34	22	28
21	68	35	44	---	---	---	78	33	53	32	23	27
22	70	34	44	---	---	---	75	39	51	36	24	28
23	63	31	46	---	40	---	74	25	48	31	19	24
24	66	33	50	85	48	59	74	27	48	42	23	30
25	78	43	57	77	45	63	60	24	42	25	14	20
26	76	20	37	92	46	65	89	22	43	33	14	21
27	56	21	30	90	53	69	117	32	50	33	21	26
28	62	27	37	97	46	66	---	---	---	40	18	26
29	59	24	35	105	56	75	---	---	---	---	15	---
30	66	25	39	107	51	79	---	---	---	56	13	24
31	---	---	---	121	50	74	---	---	---	---	---	---
MONTH	99	20	44	---	---	---	---	---	---	---	---	---

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specific conductance, wat unf uS/cm 25 deg C (00095)	pH, water, unfltrd field, std units (00400)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Turbidity, NTU (00076)	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 17...	1330	48	943	8.4	6.0	6.2	12	717	15.2	131	10	100
MAY 06...	1400	163	996	8.8	22.0	12.3	23	716	14.1	141	61	98
JUN 10...	1125	104	9	8.3	18.3	18.8	44	729	8.4	95	128	98
JUL 23...	1340	46	895	8.6	27.5	24.7	50	729	12.2	154	114	96
AUG 13...	1430	38	953	8.8	20.5	26.6	57	734	12.8	166	74	97

THIS PAGE IS INTENTIONALLY BLANK

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD

LOCATION.--Lat 43°47'25", long 96°44'42", in NW¹/₄ NW¹/₄ 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 mi², of which 1,479 mi² usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi² of the usually noncontributing area).

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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	83	e62	e50	e27	e20	147	272	143	117	46	24
2	54	81	e64	e49	e26	e19	142	276	141	111	44	23
3	57	91	e60	e48	e24	e19	133	296	136	97	43	20
4	85	83	e61	e50	e22	e18	128	307	136	97	42	20
5	97	92	e63	e48	e20	e18	126	304	144	114	46	21
6	105	92	e67	e48	e20	e17	124	307	145	90	54	20
7	142	97	e68	e50	e20	e17	128	322	144	78	46	21
8	158	99	e70	e50	e20	e16	119	326	137	82	43	20
9	140	101	71	e47	e20	e16	118	334	149	82	43	21
10	134	94	70	e39	e20	e16	116	336	166	83	42	33
11	122	92	71	e36	e20	e17	115	382	155	87	39	44
12	107	92	72	e36	e20	e18	114	425	152	89	37	46
13	102	91	70	e35	e20	e19	117	455	143	87	36	39
14	95	87	71	e33	e20	e20	108	473	135	75	34	37
15	89	86	71	e31	e20	e25	107	462	123	68	33	38
16	90	89	70	e30	e21	e45	122	443	114	66	32	37
17	91	86	71	e29	e23	e100	191	414	105	61	30	35
18	88	83	73	e28	e25	e200	287	382	106	61	31	34
19	88	81	71	e27	e27	e450	477	354	97	60	31	36
20	88	85	e67	e26	e28	e1,000	501	334	91	56	34	37
21	85	82	e60	e25	e27	e950	531	314	92	53	30	36
22	85	87	e55	e24	e23	714	521	291	93	53	29	34
23	85	85	e50	e23	e20	491	458	268	86	54	29	33
24	85	82	e50	e22	e18	399	416	259	89	54	28	27
25	84	68	e55	e21	e17	333	380	247	150	54	28	29
26	83	70	e60	e21	e18	290	352	233	131	50	26	26
27	86	75	e57	e20	e19	245	324	221	141	48	27	26
28	90	76	e55	e22	e20	208	298	201	125	46	25	27
29	89	71	e50	e23	---	186	277	186	111	45	25	25
30	93	e60	e50	e24	---	172	278	159	105	46	25	23
31	93	---	e50	e25	---	159	---	150	---	47	24	---
TOTAL	2,946	2,541	1,955	1,040	605	6,217	7,255	9,733	3,785	2,211	1,082	892
MEAN	95.0	84.7	63.1	33.5	21.6	201	242	314	126	71.3	34.9	29.7
MAX	158	101	73	50	28	1,000	531	473	166	117	54	46
MIN	54	60	50	20	17	16	107	150	86	45	24	20
AC-FT	5,840	5,040	3,880	2,060	1,200	12,330	14,390	19,310	7,510	4,390	2,150	1,770

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2003, BY WATER YEAR (WY)

	MEAN	180	159	102	50.4	95.6	684	1,457	738	740	473	267	205
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	0.000	
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1975)	(1959)	(1981)	(1976)	(1976)	(1976)	(1976)	

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD—Continued

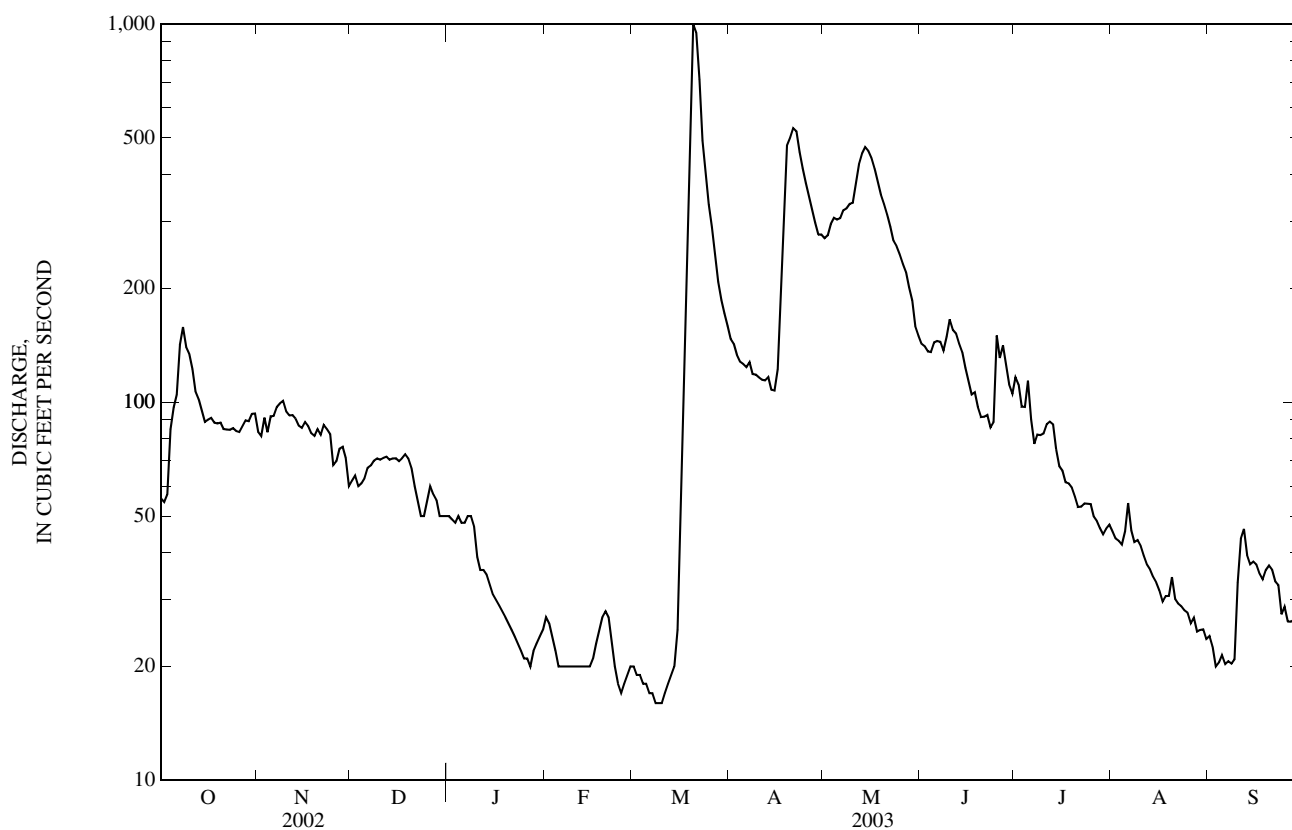
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1949 - 2003	
ANNUAL TOTAL	98,201		40,262		^a 429	
ANNUAL MEAN	269		110		1,654	
HIGHEST ANNUAL MEAN					23.1	
LOWEST ANNUAL MEAN					35,000	
HIGHEST DAILY MEAN	2,250	Apr 3	1,000	Mar 20		Apr 10, 1969
LOWEST DAILY MEAN	50	Dec 23	16	Mar 8	^b 0.00	Aug 25, 1976
ANNUAL SEVEN-DAY MINIMUM	54	Dec 23	17	Mar 5	0.00	Aug 25, 1976
MAXIMUM PEAK FLOW			1,050	Mar 20	41,300	Apr 9, 1969
MAXIMUM PEAK STAGE			^c 7.19	Mar 20	16.47	Apr 9, 1969
ANNUAL RUNOFF (AC-FT)	194,800		79,860		311,000	
10 PERCENT EXCEEDS	704		293		1,050	
50 PERCENT EXCEEDS	114		71		103	
90 PERCENT EXCEEDS	68		21		12	

a Median of annual mean discharges, 260 ft³/s.

b Also Aug. 26 to Oct. 17, 1976.

c Backwater from ice.

e Estimated.



06481480 SKUNK CREEK NEAR CHESTER, SD

LOCATION.--Lat 43° 50'53", long 96° 50'10", in NE¹/₄ NW¹/₄ NE¹/₄ 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 mi².

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 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.52	1.4	e0.70	0.84	0.68	e0.14	4.1	7.5	0.93	92	0.56	0.36
2	0.50	1.6	e0.60	0.86	0.67	e0.12	3.0	9.0	1.1	78	0.56	0.34
3	0.56	1.8	e0.60	0.90	0.67	e0.11	1.9	7.4	0.95	65	0.56	0.35
4	1.5	1.6	e0.60	0.95	0.61	e0.09	1.9	7.4	0.81	46	0.53	0.35
5	0.69	1.3	e0.60	0.93	e0.50	e0.08	1.9	9.7	0.92	41	0.76	0.35
6	0.72	1.2	e0.60	0.87	e0.45	e0.07	1.4	12	1.1	31	0.55	0.35
7	0.68	1.3	e0.63	1.0	e0.37	e0.07	2.0	12	2.8	21	0.52	0.35
8	0.71	1.2	e0.67	1.1	e0.33	e0.07	3.2	10	6.2	17	0.53	0.36
9	0.75	3.8	e0.70	e0.90	e0.32	e0.07	5.3	13	2.9	20	0.52	0.45
10	0.76	6.4	e0.75	e0.70	e0.32	e0.09	6.2	19	2.7	23	0.53	1.1
11	0.73	3.1	e0.80	e0.60	e0.32	e0.15	5.6	23	1.9	22	0.51	0.69
12	0.71	2.1	0.88	e0.60	e0.34	e0.20	5.2	23	1.8	19	0.50	0.46
13	0.66	1.0	0.92	e0.50	e0.35	e0.50	3.7	17	1.4	16	0.51	0.41
14	1.2	0.90	0.97	e0.40	e0.33	e1.0	3.1	17	1.0	15	0.51	0.36
15	1.6	0.87	0.98	e0.35	e0.31	e2.0	2.7	19	0.83	13	0.50	0.34
16	1.3	0.89	0.95	e0.37	e0.30	e10	3.5	17	0.74	11	0.50	0.35
17	1.5	0.89	e0.85	e0.40	e0.35	22	17	15	0.73	8.4	0.48	0.38
18	8.9	0.91	e0.80	e0.40	e0.39	20	18	13	0.71	6.1	0.46	0.83
19	3.3	0.91	e0.80	e0.40	e0.45	13	36	13	0.62	3.8	0.47	0.41
20	1.7	0.89	e0.70	e0.39	e0.50	10	41	13	0.61	2.7	0.56	0.38
21	1.0	0.99	e0.70	e0.38	e0.50	6.3	36	11	0.71	2.3	0.44	0.41
22	0.79	0.86	e0.65	e0.37	e0.44	4.6	33	7.0	0.88	1.7	0.40	0.38
23	0.71	0.88	e0.60	e0.36	e0.40	4.0	30	4.6	0.73	1.2	0.40	0.37
24	0.79	0.71	e0.63	e0.40	e0.30	4.3	24	3.4	0.86	0.88	0.42	0.36
25	0.84	e0.60	e0.67	e0.38	e0.20	4.5	21	1.9	12	0.72	0.44	0.35
26	0.87	e0.65	e0.75	e0.36	e0.17	4.4	19	1.3	42	0.70	0.40	0.38
27	0.86	e0.70	e0.80	e0.38	e0.15	4.6	16	1.3	73	0.64	0.37	0.36
28	0.85	e0.78	0.90	0.43	e0.14	5.2	13	1.9	101	0.63	0.41	0.35
29	0.95	e0.80	0.91	0.48	---	6.9	10	5.4	114	0.82	0.37	0.36
30	1.3	e0.75	0.95	0.53	---	5.2	8.8	2.4	106	0.75	0.37	0.36
31	1.4	---	0.86	0.59	---	3.9	---	1.1	---	0.64	0.38	---
TOTAL	39.35	41.78	23.52	18.12	10.86	133.66	377.5	318.3	481.93	561.98	15.02	12.65
MEAN	1.27	1.39	0.76	0.58	0.39	4.31	12.6	10.3	16.1	18.1	0.48	0.42
MAX	8.9	6.4	0.98	1.1	0.68	22	41	23	114	92	0.76	1.1
MIN	0.50	0.60	0.60	0.35	0.14	0.07	1.4	1.1	0.61	0.63	0.37	0.34
AC-FT	78	83	47	36	22	265	749	631	956	1,110	30	25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1987, 2002 - 2003, BY WATER YEAR (WY)

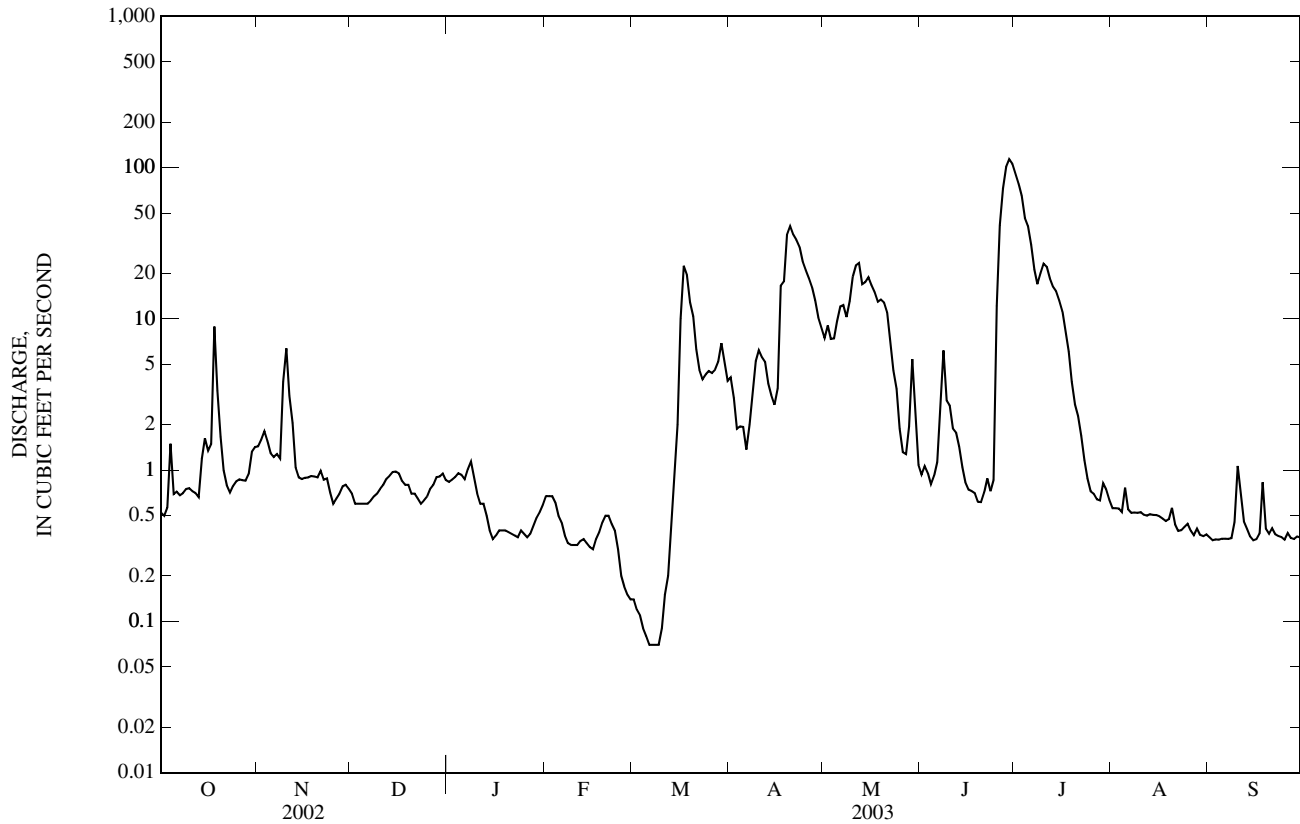
	MEAN	MAX	(WY)	MIN	(WY)	MEAN	MAX	(WY)	MIN	(WY)	MEAN	MAX	(WY)	MIN	(WY)
	48.2	210	(1987)	1.27	(2003)	18.7	71.2	(1987)	1.28	(1986)	10.7	37.5	(1987)	0.73	(1986)
	5.68	22.2	(1987)	0.56	(1986)	7.17	22.9	(1987)	0.39	(2003)	99.7	270	(1985)	4.31	(2003)
	138	284	(1986)	12.6	(2003)	83.7	304	(1986)	10.3	(2003)	48.0	191	(1986)	1.09	(2002)
	46.5	154	(1986)	0.49	(2002)	9.71	38.5	(1986)	0.48	(2003)	52.3	256	(1986)	0.42	(2003)

06481480 SKUNK CREEK NEAR CHESTER, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1985-1987, 2002-2003	
ANNUAL TOTAL	2,086.95		2,034.67		47.5	
ANNUAL MEAN	5.72		5.57		110	
HIGHEST ANNUAL MEAN					5.57	
LOWEST ANNUAL MEAN					110	
HIGHEST DAILY MEAN	107	Mar 30	114	Jun 29	813	Sep 22, 1986
LOWEST DAILY MEAN	0.37	Aug 1	0.07	Mar 6	^a 0.07	Mar 6, 2003
ANNUAL SEVEN-DAY MINIMUM	0.44	Jul 27	0.08	Mar 4	0.08	Mar 4, 2003
MAXIMUM PEAK FLOW			116	Jun 29	1,060	Sep 21, 1986
MAXIMUM PEAK STAGE			3.31	Jun 29	6.95	Sep 21, 1986
ANNUAL RUNOFF (AC-FT)	4,140		4,040		34,400	
10 PERCENT EXCEEDS	21		16		165	
50 PERCENT EXCEEDS	1.2		0.84		3.9	
90 PERCENT EXCEEDS	0.51		0.35		0.55	

a Also Mar. 7-9, 2003.

e Estimated.



06481500 SKUNK CREEK AT SIOUX FALLS, SD

LOCATION.--Lat 43° 32'01", long 96° 47'26", in NW¹/₄ NW¹/₄ SW¹/₄ 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 mi², of which 8.51 mi² is probably noncontributing.

PERIOD OF RECORD.--May 1948 to September 2001 (daily discharge). 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.

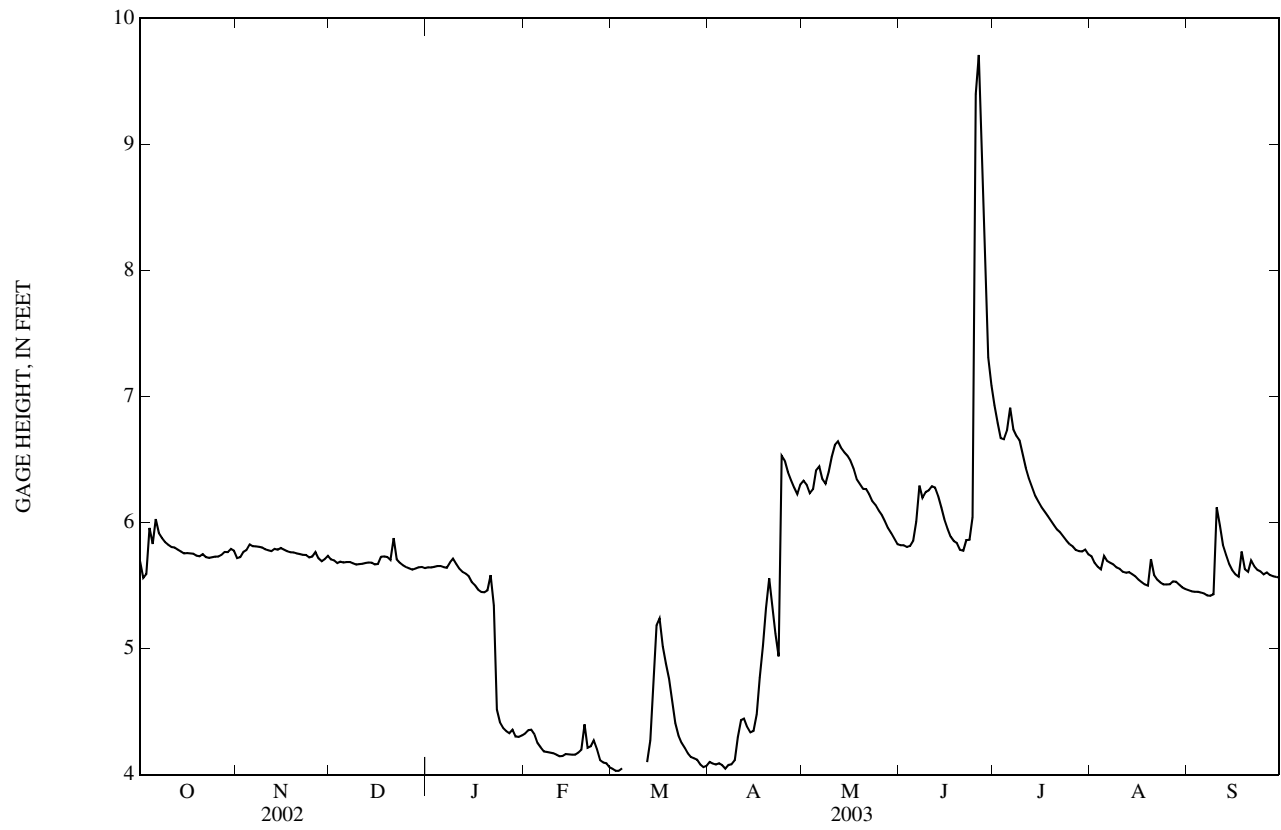
GAGE.--Water-stage recorder. Datum of gage is 1,400.10 ft above NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 24, 1949, nonrecording gage, and Oct. 24, 1949, to Apr. 28, 1972, water-stage recorder, both at site 1.9 mi upstream at datum 15.19 ft higher. Apr. 28, 1972, to Sept. 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.--Published stage records good. Gage at temporary site 500 ft upstream due to bridge construction, from Apr. 24 to Sept. 30 at same datum. U.S. Army Corps of Engineers satellite data-collection platform at station.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.69	5.72	5.71	5.64	4.33	4.05	4.10	6.33	5.82	6.93	5.73	5.46
2	5.56	5.72	5.70	5.64	4.35	4.03	4.09	6.30	5.82	6.79	5.68	5.45
3	5.59	5.77	5.68	5.65	4.36	4.03	4.08	6.23	5.81	6.67	5.65	5.45
4	5.96	5.78	5.69	5.66	4.32	4.05	4.09	6.26	5.81	6.66	5.63	5.45
5	5.83	5.83	5.68	5.65	4.25	---	4.08	6.41	5.86	6.73	5.74	5.44
6	6.03	5.81	5.69	5.65	4.22	---	4.05	6.44	6.01	6.91	5.70	5.44
7	5.92	5.81	5.69	5.64	4.18	---	4.08	6.35	6.29	6.74	5.68	5.42
8	5.88	5.81	5.68	5.68	4.18	---	4.08	6.31	6.20	6.69	5.67	5.42
9	5.84	5.80	5.67	5.71	4.17	---	4.11	6.40	6.24	6.65	5.64	5.43
10	5.82	5.79	5.67	5.67	4.17	---	4.30	6.52	6.25	6.54	5.63	6.12
11	5.81	5.78	5.67	5.64	4.16	---	4.43	6.62	6.29	6.43	5.61	5.98
12	5.80	5.77	5.68	5.61	4.15	4.10	4.44	6.64	6.28	6.35	5.60	5.82
13	5.79	5.79	5.68	5.60	4.15	4.27	4.38	6.59	6.21	6.28	5.61	5.74
14	5.77	5.78	5.68	5.58	4.16	4.72	4.33	6.56	6.12	6.22	5.59	5.67
15	5.75	5.80	5.67	5.53	4.16	5.18	4.35	6.53	6.03	6.17	5.57	5.62
16	5.76	5.78	5.67	5.50	4.16	5.24	4.48	6.49	5.95	6.12	5.55	5.59
17	5.75	5.77	5.73	5.47	4.16	5.02	4.77	6.43	5.89	6.09	5.53	5.57
18	5.75	5.76	5.73	5.45	4.18	4.88	5.02	6.34	5.85	6.05	5.51	5.77
19	5.74	5.76	5.73	5.45	4.20	4.76	5.32	6.30	5.84	6.02	5.50	5.63
20	5.73	5.76	5.70	5.46	4.40	4.58	5.56	6.27	5.78	5.98	5.71	5.61
21	5.75	5.75	5.88	5.58	4.21	4.41	5.34	6.27	5.78	5.94	5.58	5.70
22	5.73	5.74	5.71	5.34	4.22	4.31	5.12	6.22	5.86	5.92	5.55	5.65
23	5.72	5.74	5.68	4.52	4.27	4.25	4.94	6.17	5.86	5.89	5.52	5.62
24	5.73	5.72	5.66	4.41	4.20	4.21	6.53	6.14	6.04	5.86	5.51	5.61
25	5.73	5.73	5.65	4.37	4.11	4.17	6.49	6.10	9.40	5.83	5.51	5.59
26	5.73	5.77	5.64	4.34	4.10	4.14	6.40	6.06	9.71	5.81	5.51	5.60
27	5.74	5.72	5.63	4.33	4.09	4.13	6.34	6.01	8.48	5.78	5.53	5.58
28	5.77	5.69	5.64	4.36	4.06	4.12	6.28	5.96	7.77	5.77	5.53	5.57
29	5.77	5.71	5.64	4.30	---	4.08	6.23	5.91	7.31	5.77	5.51	5.57
30	5.79	5.74	5.65	4.30	---	4.06	6.30	5.87	7.09	5.79	5.49	5.56
31	5.78	---	5.64	4.31	---	4.07	---	5.83	---	5.75	5.47	---
MEAN	5.77	5.76	5.68	5.23	4.20	---	4.94	6.29	6.46	6.23	5.59	5.60
MAX	6.03	5.83	5.88	5.71	4.40	---	6.53	6.64	9.71	6.93	5.74	6.12
MIN	5.56	5.69	5.63	4.30	4.06	---	4.05	5.83	5.78	5.75	5.47	5.42

06481500 SKUNK CREEK AT SIOUX FALLS, SD—Continued

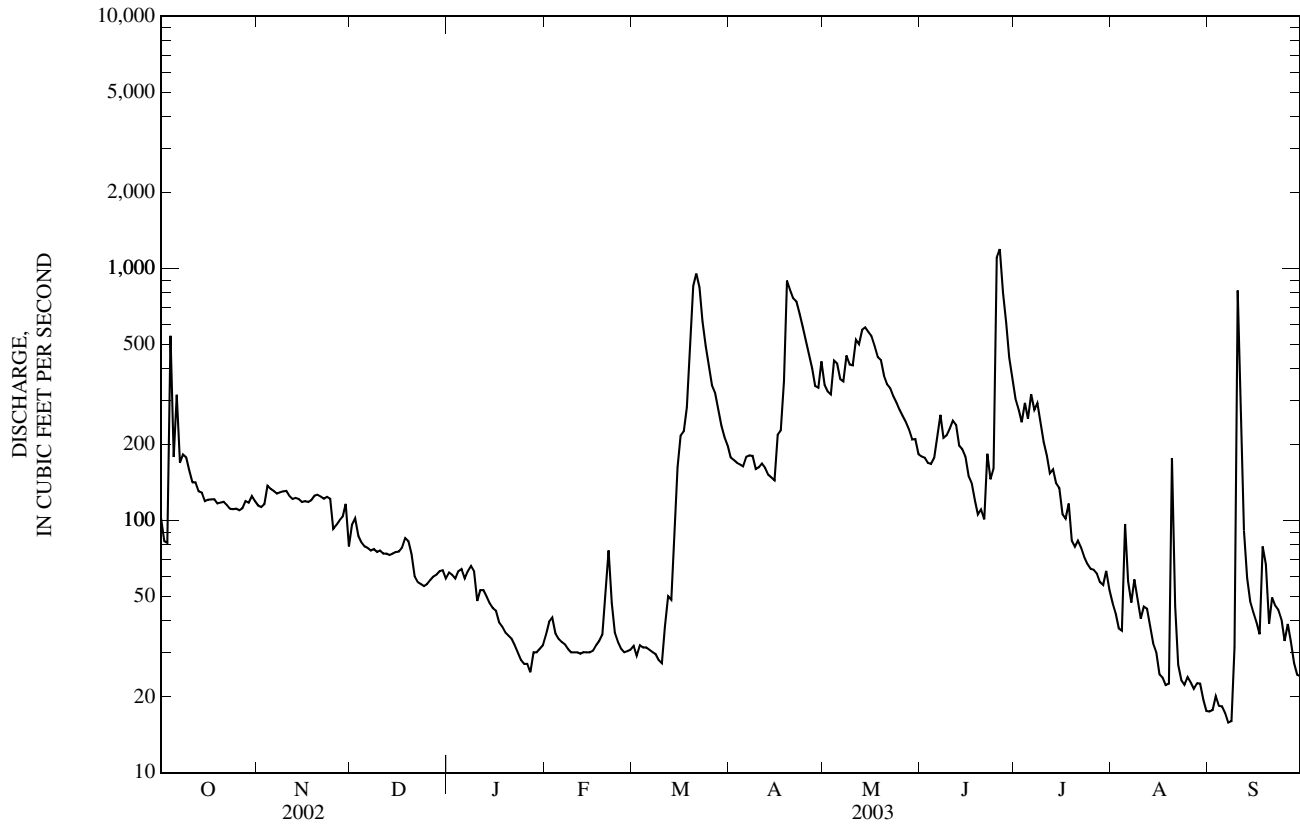


06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1972 - 2003	
ANNUAL TOTAL	112,061		59,208		^a 693	
ANNUAL MEAN	307		162		2,312	
HIGHEST ANNUAL MEAN					50.4	
LOWEST ANNUAL MEAN					20,700	
HIGHEST DAILY MEAN	2,270	Mar 31	1,190	Jun 26	21,600	Jun 22, 1984
LOWEST DAILY MEAN	40	Aug 2	16	Sep 7	0.81	Feb 13, 1982
ANNUAL SEVEN-DAY MINIMUM	44	Jul 27	18	Sep 2	1.3	Feb 8, 1982
MAXIMUM PEAK FLOW			1,420	Sep 10	21,600	Jun 22, 1984
MAXIMUM PEAK STAGE			9.37	Sep 10	25.40	Jun 22, 1984
ANNUAL RUNOFF (AC-FT)	222,300		117,400		501,700	
10 PERCENT EXCEEDS	859		413		1,810	
50 PERCENT EXCEEDS	156		102		207	
90 PERCENT EXCEEDS	61		30		25	

a Median of annual mean discharges, 550 ft³/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, excellent; specific conductance, excellent except those for Mar. 13 to May 15, which are good, those for June 9-27, which are fair, and those for June 28 to Aug. 14, which are poor; pH, excellent except those for Aug. 14 to Sept. 30, which are fair; dissolved oxygen, generally poor; and turbidity, good except those for July 16 to Aug. 14, 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.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.5	13.9	16.5	3.8	0.7	1.8	2.5	0.7	1.4	2.4	1.4	2.0
2	13.9	12.4	13.1	4.0	0.7	2.0	1.8	0.9	1.3	2.4	0.3	1.5
3	12.7	11.3	12.2	5.3	2.3	3.6	1.5	0.6	1.1	2.1	0.3	1.3
4	12.7	11.6	12.1	4.5	2.2	3.5	1.6	0.4	1.1	2.6	0.9	2.1
5	13.6	11.1	12.2	3.9	3.1	3.6	1.9	0.2	0.9	2.4	1.5	2.0
6	12.4	10.2	11.5	5.0	2.7	3.8	---	0.8	---	2.2	1.1	1.8
7	12.3	---	---	6.3	3.2	5.0	2.5	0.8	1.6	3.3	1.0	2.2
8	13.3	10.7	12.0	6.4	4.7	5.8	2.7	0.7	1.5	3.7	1.3	2.5
9	13.2	10.2	11.8	7.1	5.6	6.4	2.6	0.3	1.6	2.3	1.1	1.8
10	15.6	10.6	13.0	6.6	3.7	4.8	2.8	0.9	1.8	2.4	0.6	1.6
11	16.9	13.7	15.0	4.3	2.8	3.5	2.8	1.2	2.0	2.7	1.1	1.8
12	15.3	11.3	13.7	5.0	2.5	3.9	3.1	1.7	2.2	2.7	0.9	1.6
13	12.1	---	---	5.3	3.9	4.7	3.1	1.1	2.1	1.9	0.4	1.2
14	12.7	---	---	5.3	3.6	4.7	2.7	1.2	2.0	2.6	0.8	1.5
15	11.9	---	---	4.2	2.9	3.7	2.8	1.1	1.8	2.6	1.0	2.0
16	9.3	7.4	8.7	3.8	2.3	3.0	2.5	1.0	1.8	3.4	1.4	2.3
17	9.6	6.9	8.0	3.3	1.4	2.5	2.1	1.4	1.9	3.6	1.2	2.3
18	9.8	8.2	8.9	4.8	2.7	3.8	2.3	1.3	1.9	3.2	1.2	2.0
19	8.6	6.5	7.7	5.3	3.2	4.4	2.0	1.2	1.7	3.8	1.0	2.3
20	8.9	5.9	7.1	5.9	4.3	5.2	1.8	0.6	1.4	3.1	1.8	2.5
21	8.3	6.7	7.4	5.6	4.3	4.9	2.1	0.6	1.3	3.3	1.4	2.2
22	6.7	5.1	5.9	4.8	3.1	4.1	---	0.3	---	3.2	1.6	2.0
23	5.1	3.8	4.5	4.4	2.8	3.7	---	0.5	---	3.7	1.2	2.2
24	4.6	3.0	3.9	3.4	0.7	2.0	1.5	0.4	0.8	4.0	1.6	2.5
25	5.4	3.7	4.6	2.8	0.5	1.4	2.2	0.9	1.3	3.0	1.1	2.2
26	6.7	3.9	5.1	1.5	0.7	1.2	2.3	0.3	1.4	4.1	0.6	1.8
27	6.1	4.9	5.4	2.1	0.2	1.3	2.6	0.9	1.8	4.9	0.6	2.6
28	5.3	4.1	4.9	2.5	0.8	1.7	3.2	1.2	2.2	4.2	2.7	3.4
29	6.0	4.8	5.6	2.2	0.7	1.5	2.5	1.0	1.8	3.9	2.3	2.9
30	5.5	2.9	4.2	2.3	0.3	1.2	2.1	0.9	1.5	4.7	2.8	3.8
31	3.7	1.3	2.4	---	---	---	2.6	0.8	1.7	4.8	2.8	3.7
MONTH	18.5	---	---	7.1	0.2	3.4	---	0.2	---	4.9	0.3	2.2

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

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	984	945	971	1,180	1,130	1,160	1,470	1,350	1,410	1,020	969	989
2	980	934	950	1,180	1,120	1,160	1,480	1,310	1,370	1,040	873	981
3	970	954	962	1,170	1,120	1,150	1,420	1,190	1,330	1,470	1,040	1,260
4	970	925	961	1,150	946	1,000	1,510	1,400	1,460	1,580	1,470	1,550
5	987	889	929	1,110	1,040	1,090	1,500	891	1,060	1,860	1,530	1,670
6	987	818	918	1,120	1,060	1,110	1,210	940	1,120	1,840	1,540	1,690
7	912	821	874	1,110	1,050	1,070	1,360	1,160	1,280	1,660	1,500	1,590
8	947	853	895	1,140	903	985	1,420	1,300	1,350	1,840	1,470	1,600
9	1,020	902	949	1,130	968	1,070	1,370	1,210	1,290	2,050	1,220	1,620
10	994	915	950	1,220	1,090	1,150	1,350	1,160	1,250	1,360	---	---
11	989	943	965	1,240	1,170	1,210	1,500	1,260	1,370	---	---	---
12	1,020	968	996	1,260	1,210	1,240	1,470	1,230	1,380	915	---	---
13	1,110	940	1,000	1,230	1,100	1,170	1,460	1,140	1,360	1,070	881	974
14	1,120	1,010	1,060	1,130	1,080	1,110	1,640	1,440	1,560	1,190	1,070	1,100
15	1,020	991	1,010	1,130	1,070	1,100	1,720	1,480	1,640	1,350	1,080	1,230
16	1,050	1,000	1,030	1,200	1,110	1,150	1,870	1,640	1,770	1,500	1,300	1,430
17	1,050	1,020	1,040	1,230	1,170	1,210	1,870	1,510	1,760	1,540	1,370	1,480
18	1,150	1,020	1,060	1,210	1,080	1,150	---	---	---	1,430	801	1,050
19	1,140	1,020	1,080	1,240	1,110	1,180	---	---	---	---	826	---
20	1,140	1,060	1,110	1,290	1,220	1,250	---	---	---	1,130	943	1,070
21	1,120	1,040	1,080	1,280	1,210	1,250	1,080	774	917	1,130	876	1,010
22	1,120	610	851	1,290	1,220	1,260	1,310	1,010	1,190	1,210	1,080	1,150
23	1,040	797	951	1,340	1,250	1,310	1,450	1,260	1,320	1,280	1,160	1,230
24	1,080	604	1,010	1,380	1,300	1,350	1,400	1,150	1,300	1,330	1,120	1,220
25	668	372	509	1,400	1,310	1,370	1,520	1,160	1,370	1,450	1,310	1,400
26	682	587	655	1,400	1,270	1,340	1,660	1,460	1,550	1,430	1,100	1,290
27	809	682	754	1,380	1,270	1,340	1,750	1,580	1,670	1,500	1,190	1,380
28	898	797	850	1,410	1,280	1,350	1,810	1,520	1,650	1,540	1,410	1,460
29	1,020	898	955	1,500	869	1,400	1,780	1,630	1,680	1,580	1,240	1,390
30	1,140	1,010	1,070	1,360	1,220	1,300	1,830	992	1,230	1,720	1,570	1,650
31	---	---	---	1,380	1,250	1,330	1,020	921	979	---	---	---
MONTH	1,150	372	946	1,500	869	1,200	---	---	---	---	---	---

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

DISSOLVED OXYGEN, WATER, UNFILTERED, MILLIGRAMS PER LITER—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

[illegible]

THIS PAGE IS INTENTIONALLY BLANK

06482610 SPLIT ROCK CREEK AT CORSON, SD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966-1989, 2002-2003	
ANNUAL TOTAL	25,810		31,910		^a 98.7	
ANNUAL MEAN	70.7		87.4		348	
HIGHEST ANNUAL MEAN					11.3	
LOWEST ANNUAL MEAN					16,400	
HIGHEST DAILY MEAN	747	Aug 21	993	Apr 20	^b 0.00	Apr 8, 1969
LOWEST DAILY MEAN	12	Jul 30	13	Sep 6	^c 0.00	Jul 20, 1966
ANNUAL SEVEN-DAY MINIMUM	14	Jul 28	14	Sep 3	^c 0.00	Jan 28, 1977
MAXIMUM PEAK FLOW			1,130	Apr 20	^d 18,900	May 8, 1993
MAXIMUM PEAK STAGE			5.57	Apr 20	^d 17.58	May 8, 1993
ANNUAL RUNOFF (AC-FT)	51,190		63,290		71,520	
10 PERCENT EXCEEDS	148		222		180	
50 PERCENT EXCEEDS	48		49		24	
90 PERCENT EXCEEDS	24		21		4.4	

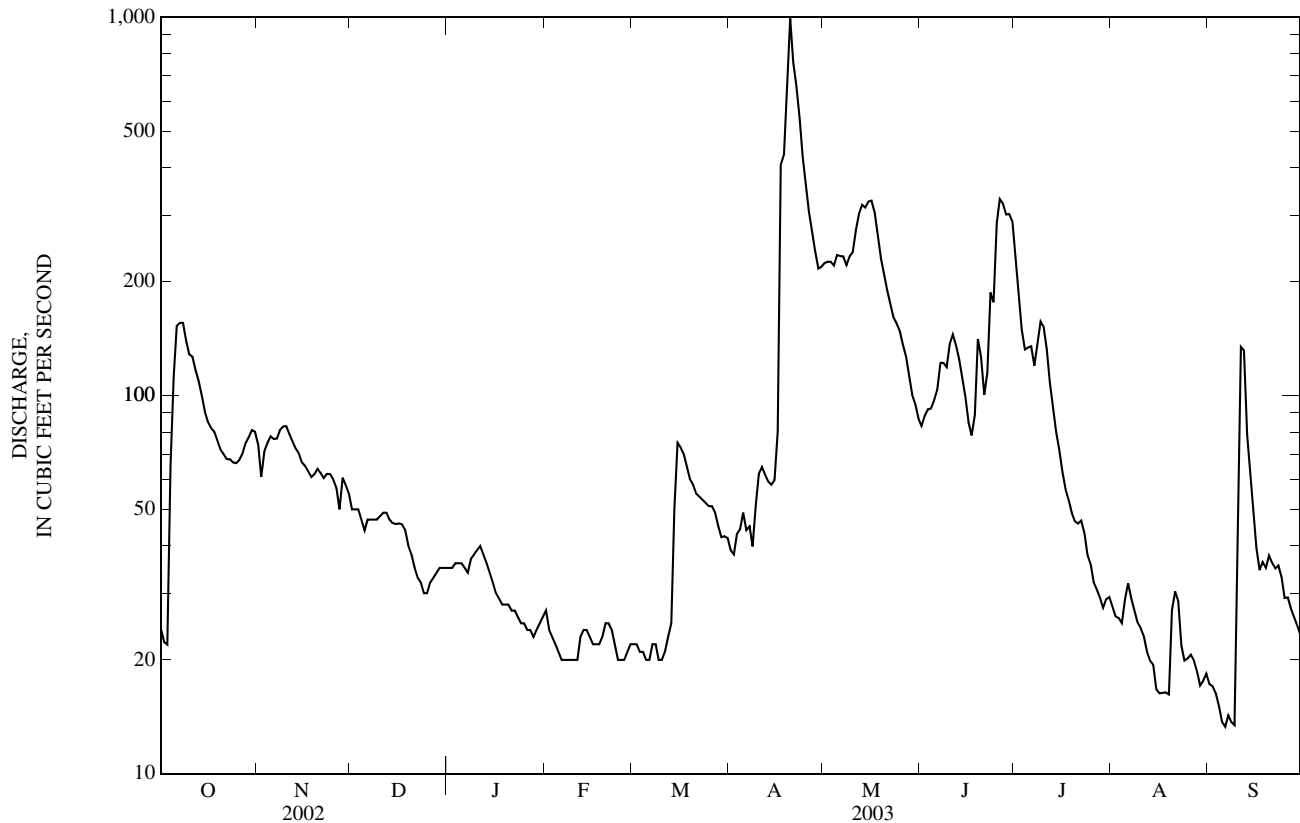
a Median of annual mean discharges, 61 ft³/s.

b No flow at times in some years.

c Includes water years 1990-97 during crest-stge gage operation.

d From floodmark.

e Estimated.



06483500 ROCK RIVER NEAR ROCK VALLEY, IA—Continued

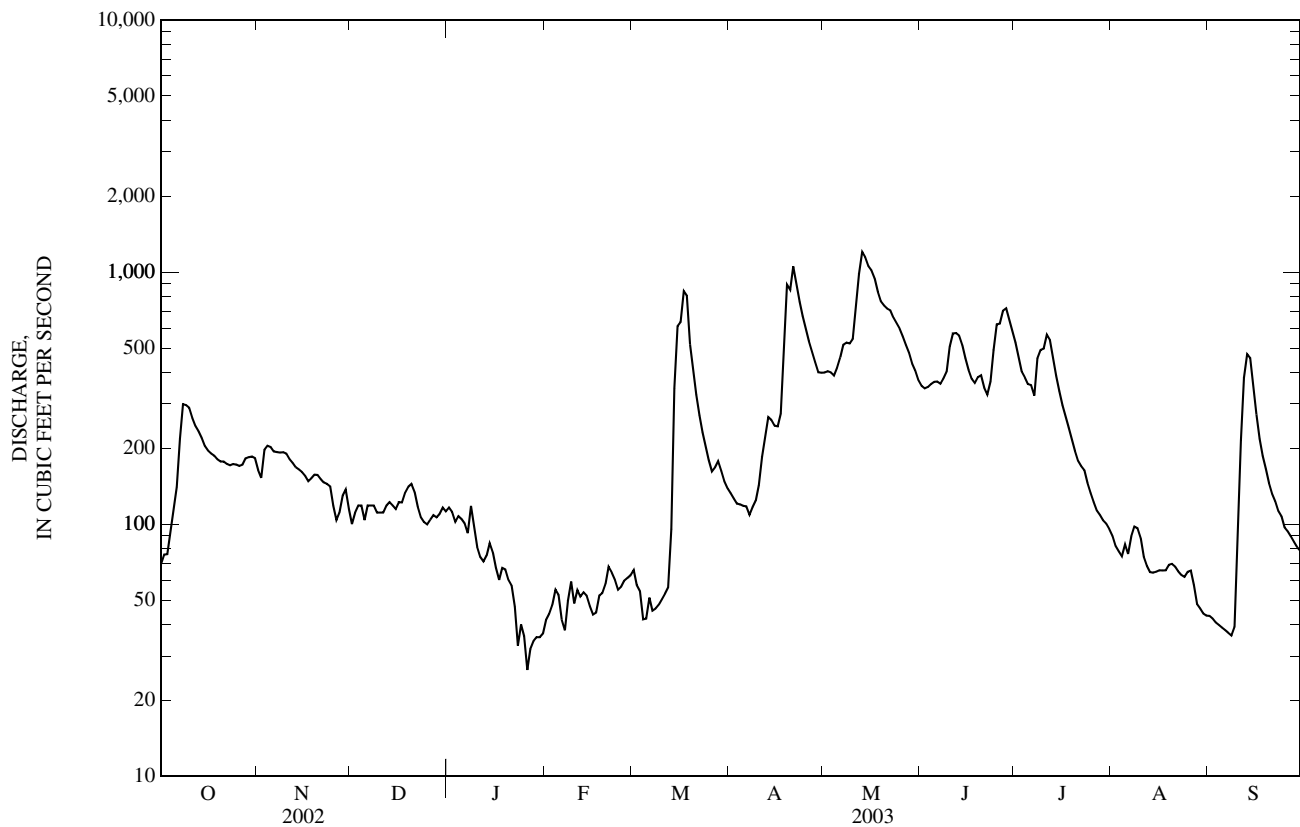
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1949 - 2003	
ANNUAL TOTAL	99,210		85,797		502	
ANNUAL MEAN	272		235		31.0	
HIGHEST ANNUAL MEAN					2,656	
LOWEST ANNUAL MEAN					1993	
HIGHEST DAILY MEAN	1,150	Aug 23	1,200	May 13	35,400	Apr 7, 1969
LOWEST DAILY MEAN	63	Aug 20	^a 26	Jan 26	^b 0.00	Feb 20, 1959
ANNUAL SEVEN-DAY MINIMUM	67	Sep 22	34	Jan 23	0.00	Feb 27, 1959
MAXIMUM PEAK FLOW			1,230	May 13	40,400	Apr 7, 1969
MAXIMUM PEAK STAGE			6.24	May 13	^c 17.32	Apr 7, 1969
INSTANTANEOUS LOW FLOW			26	Jan 26		
ANNUAL RUNOFF (AC-FT)	196,800		170,200		363,500	
ANNUAL RUNOFF (CFSM)	0.17		0.15		0.32	
ANNUAL RUNOFF (INCHES)	2.32		2.00		4.28	
10 PERCENT EXCEEDS	569		558		1,130	
50 PERCENT EXCEEDS	183		141		136	
90 PERCENT EXCEEDS	78		49		17	

a Ice affected.

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—Continued

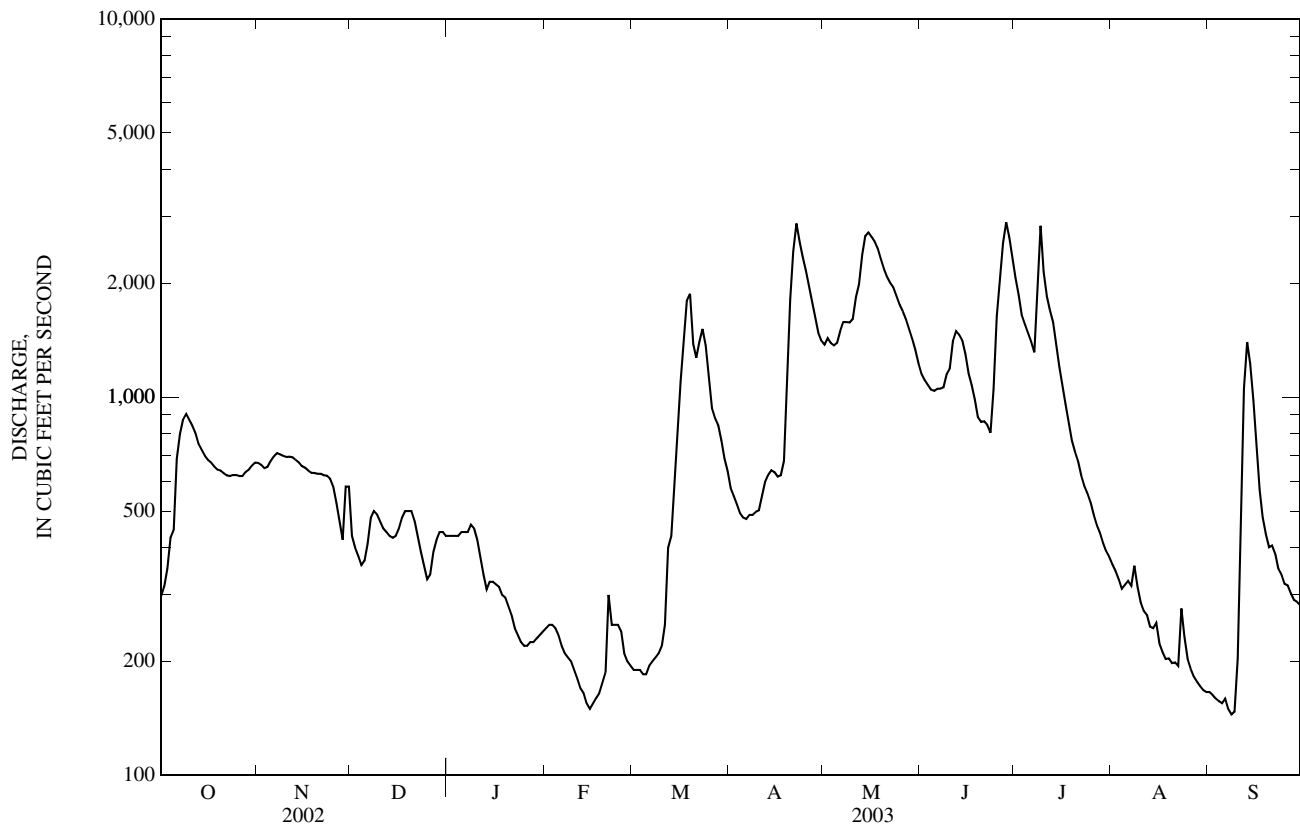
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1929 - 2003	
ANNUAL TOTAL	330,769		279,083		^a 1,239	
ANNUAL MEAN	906		765		6,271	
HIGHEST ANNUAL MEAN					120	
LOWEST ANNUAL MEAN					77,500	
HIGHEST DAILY MEAN	3,530	Apr 2	2,900	Jun 28	4.0	Apr 9, 1969
LOWEST DAILY MEAN	240	Sep 27	145	Sep 8	4.4	Jan 17, 1977
ANNUAL SEVEN-DAY MINIMUM	249	Sep 24	153	Sep 3	^b 80,800	Jan 15, 1977
MAXIMUM PEAK FLOW			3,400	Jul 9	^c 23.38	Apr 9, 1969
MAXIMUM PEAK STAGE			11.02	Jul 9	897,600	
ANNUAL RUNOFF (AC-FT)	656,100		553,600		2,910	
10 PERCENT EXCEEDS	1,900		1,720		409	
50 PERCENT EXCEEDS	680		548		72	
90 PERCENT EXCEEDS	356		200			

a Median of annual mean discharges, 820 ft³/s.

b Gage height, 22.99 ft.

c Discharge, 40,400 ft³/s.

e Estimated.



WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1966 to September 1994 and October 2001 to current year.

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 2003 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 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Temperature, water, deg C (00010)	Temperature, air, deg C (00020)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf 25 degC (00095)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Barometric pressure, mm Hg (00025)
MAR 26...	1300	931	8.7	16.0	7.9	612	10.1	92	722
APR 23...	1700	2,490	13.0	21.0	8.3	874	9.5	95	728
JUN 26...	1400	2,010	20.6	23.0	8.0	760	6.0	70	735
JUL 16...	1530	1,110	26.8	32.0	8.3	871	13.4	174	736
SEP 04...	1000	163	18.6	18.0	8.4	819	10.4	115	740
12...	1445	1,280	17.7	27.0	7.5	862	4.6	51	729

THIS PAGE IS INTENTIONALLY BLANK

06486000 MISSOURI RIVER AT SIOUX CITY, IA—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1953 - 2003 ^a	
ANNUAL TOTAL	8,771,100		8,729,300		29,530	
ANNUAL MEAN	24,030		23,920		55,890	
HIGHEST ANNUAL MEAN					19,770	
LOWEST ANNUAL MEAN					105,000	
HIGHEST DAILY MEAN	34,700	Aug 23	35,000	Sep 11	19770	1957
LOWEST DAILY MEAN	13,200	Dec 25	10,100	Feb 25	3,000	Dec 11, 1961
ANNUAL SEVEN-DAY MINIMUM	13,800	Dec 19	12,800	Mar 5	5,430	Feb 22, 1963
MAXIMUM PEAK FLOW			36,200	Sep 11	101,000	Apr 3, 1960
MAXIMUM PEAK STAGE			16.83	Sep 11	30.65	Feb 19, 1971
INSTANTANEOUS LOW FLOW			9,610	Feb 25		
ANNUAL RUNOFF (AC-FT)	17,400,000		17,310,000		21,400,000	
ANNUAL RUNOFF (CFSM)	0.076		0.076		0.094	
ANNUAL RUNOFF (INCHES)	1.04		1.03		1.28	
10 PERCENT EXCEEDS	31,600		31,300		46,200	
50 PERCENT EXCEEDS	26,200		26,600		29,900	
90 PERCENT EXCEEDS	14,700		14,000		12,100	

a Post regulation.

e Estimated.

