

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	14	e16	e13	e11	59	72	20	35	16	12	9.0
2	11	15	e15	e14	e12	44	55	19	31	16	10	8.2
3	11	15	e15	e15	e13	40	45	18	28	16	10	8.5
4	11	16	e15	e13	e14	43	39	18	25	22	10	7.7
5	11	e14	e14	e12	e14	45	35	16	23	37	9.6	8.4
6	11	e10	e13	e11	e13	45	31	14	21	43	9.3	9.4
7	11	e11	e14	e11	e13	47	26	13	19	39	9.2	9.3
8	10	e12	e16	e12	e12	51	24	14	31	32	17	9.2
9	10	e13	e18	e13	e12	58	24	13	138	27	17	8.8
10	10	e14	e17	e14	e12	67	24	13	494	23	13	8.6
11	12	e15	e16	e15	e11	72	25	14	231	19	12	8.9
12	12	16	e15	e15	e11	59	26	53	192	17	11	9.2
13	12	15	e16	e15	e12	52	26	70	131	17	11	9.1
14	12	16	e16	e14	e12	48	26	60	92	17	10	9.8
15	12	15	e17	e16	e12	47	25	53	69	15	10	12
16	12	16	e17	e16	e13	45	24	47	56	13	12	11
17	12	16	e17	e15	e14	49	24	49	48	12	15	11
18	13	15	e18	e14	e16	52	22	47	41	12	14	10
19	12	15	e19	e13	e22	49	21	41	37	11	12	9.8
20	12	15	e19	e13	e29	44	22	36	38	11	11	9.7
21	12	15	e20	e14	e35	41	26	33	35	11	11	12
22	12	15	e20	e15	e45	38	26	31	31	11	10	14
23	12	e14	e19	e16	e57	36	26	39	27	13	9.7	19
24	12	e13	e19	e16	e70	34	26	77	25	13	9.2	22
25	12	e13	e19	e15	e65	32	27	96	23	12	8.8	19
26	13	e13	e19	e13	e60	30	26	73	21	12	9.2	17
27	14	e13	e18	e14	e56	39	24	63	20	11	9.4	16
28	14	e14	e17	e13	e52	76	23	52	18	11	9.8	15
29	14	e15	e16	e12	49	108	22	44	18	10	10	14
30	14	e15	e15	e12	---	92	21	40	16	10	9.8	14
31	14	---	e14	e11	---	83	---	37	---	10	9.3	---
TOTAL	371	428	519	425	767	1,625	863	1,213	2,014	539	341.3	349.6
MEAN	12.0	14.3	16.7	13.7	26.4	52.4	28.8	39.1	67.1	17.4	11.0	11.7
MAX	14	16	20	16	70	108	72	96	494	43	17	22
MIN	10	10	13	11	11	30	21	13	16	10	8.8	7.7
AC-FT	736	849	1,030	843	1,520	3,220	1,710	2,410	3,990	1,070	677	693

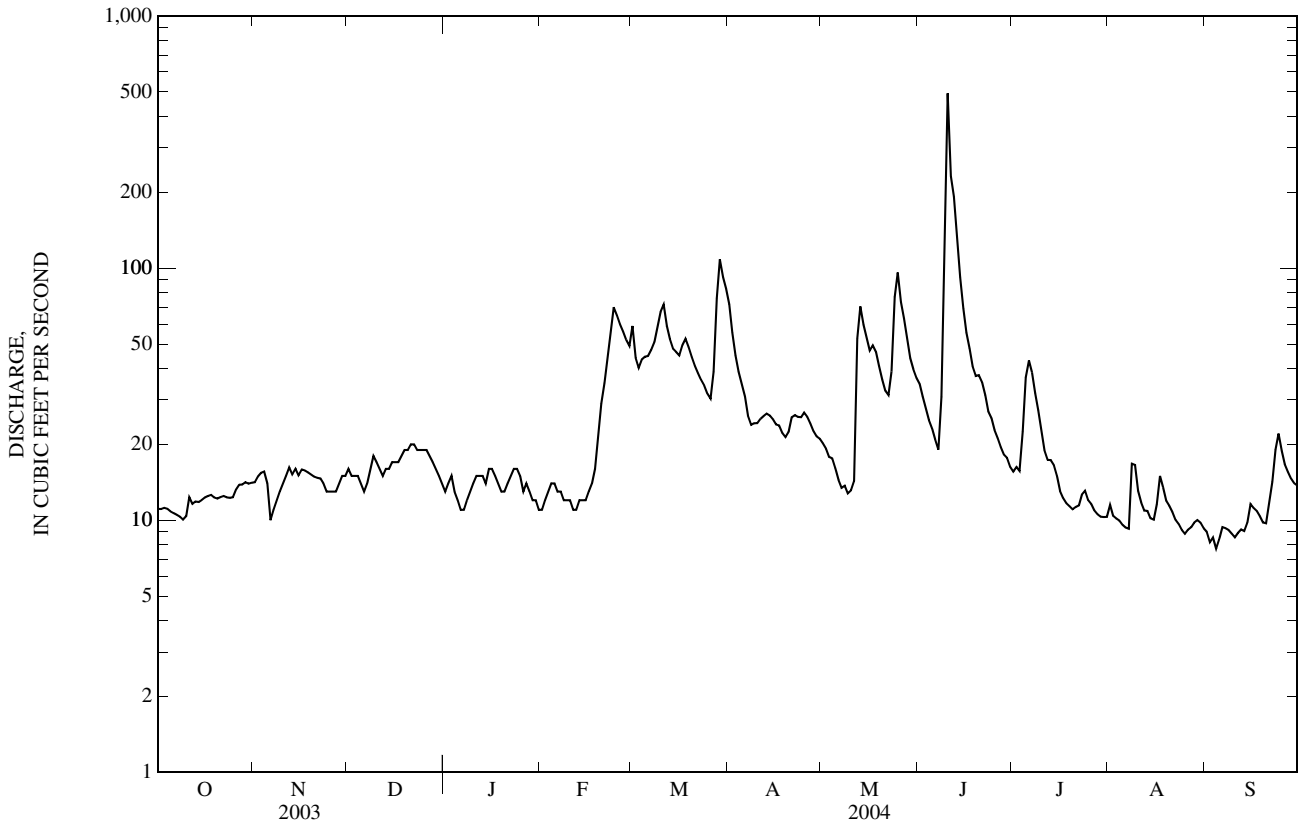
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2004, BY WATER YEAR (WY)

MEAN	24.1	29.4	25.2	21.8	55.2	83.3	78.9	87.5	62.0	35.6	21.9	18.6
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)	(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)

06464100 KEYA PAHA RIVER NEAR KEYAPAHA, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1982 - 2004	
ANNUAL TOTAL	8,412.7		9,454.9		^a 45.2	
ANNUAL MEAN	23.0		25.8		81.0 1997	
HIGHEST ANNUAL MEAN					18.5 1989	
LOWEST ANNUAL MEAN					928 Feb 20, 1997	
HIGHEST DAILY MEAN	115	May 10	494	Jun 10		
LOWEST DAILY MEAN	6.4	Aug 24	7.7	Sep 4	2.4 Jan 6, 1991	
ANNUAL SEVEN-DAY MINIMUM	6.7	Aug 23	8.6	Aug 31	2.5 Jan 1, 1991	
MAXIMUM PEAK FLOW			671	Jun 10	^b 1,200 May 11, 1999	
MAXIMUM PEAK STAGE			7.92	Jun 10	^c 11.29 Feb 18, 1997	
ANNUAL RUNOFF (AC-FT)	16,690		18,750		32,740	
10 PERCENT EXCEEDS	50		51		90	
50 PERCENT EXCEEDS	15		15		27	
90 PERCENT EXCEEDS	8.9		10		12	

- a Median of annual mean discharges, 44 ft³/s.
- b Gage height, 9.48 ft.
- c Backwater from ice.
- e Estimated.



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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	30	e33	e31	e17	143	132	44	71	36	16	13
2	20	30	e34	e32	e17	120	117	42	67	37	16	12
3	20	30	e35	e30	e16	101	102	41	62	39	15	11
4	21	30	e36	e28	e16	91	89	40	58	37	16	10
5	22	28	e34	e26	e16	91	80	40	56	45	15	11
6	21	e25	e33	e24	e15	89	75	36	51	54	14	11
7	20	e22	e34	e23	e15	88	69	34	46	55	13	12
8	20	e24	e36	e22	e15	89	62	34	44	52	23	13
9	20	e35	e34	e22	e15	92	59	33	49	46	28	13
10	20	e42	e33	e23	e15	99	59	32	170	40	26	12
11	24	39	e32	e23	e15	101	59	31	378	35	22	12
12	24	35	e32	e24	e14	101	58	38	218	31	19	12
13	23	32	e31	e24	e15	93	58	71	187	28	19	10
14	22	32	e31	e23	e15	85	57	91	145	27	19	11
15	22	31	e30	e24	e15	84	54	89	114	26	16	14
16	22	31	e30	e24	e16	84	52	90	94	25	16	16
17	25	31	e31	e24	e18	88	48	91	88	24	15	15
18	24	31	e31	e23	e25	94	49	88	78	22	18	15
19	24	31	e32	e22	e35	94	47	80	72	20	17	14
20	23	33	e33	e21	e50	89	51	72	70	20	16	16
21	22	32	e34	e21	e70	81	54	65	68	19	15	28
22	22	29	e34	e21	e100	77	54	66	63	19	14	30
23	22	e28	e33	e22	e150	74	54	79	58	18	13	36
24	22	e25	e32	e23	e180	71	54	89	52	19	21	42
25	22	e28	e32	e22	e175	69	55	106	49	20	17	41
26	23	e29	e32	e21	e170	66	54	121	47	18	14	36
27	26	e30	e33	e20	e160	76	52	110	45	17	14	31
28	27	e30	e34	e19	e155	118	51	95	43	17	15	29
29	27	e31	e33	e19	e150	157	46	83	41	16	15	27
30	27	e32	e32	e18	---	166	45	78	40	16	15	26
31	28	---	e31	e18	---	146	---	76	---	16	14	---
TOTAL	705	916	1,015	717	1,685	3,017	1,896	2,085	2,624	894	526	579
MEAN	22.7	30.5	32.7	23.1	58.1	97.3	63.2	67.3	87.5	28.8	17.0	19.3
MAX	28	42	36	32	180	166	132	121	378	55	28	42
MIN	20	22	30	18	14	66	45	31	40	16	13	10
AC-FT	1,400	1,820	2,010	1,420	3,340	5,980	3,760	4,140	5,200	1,770	1,040	1,150

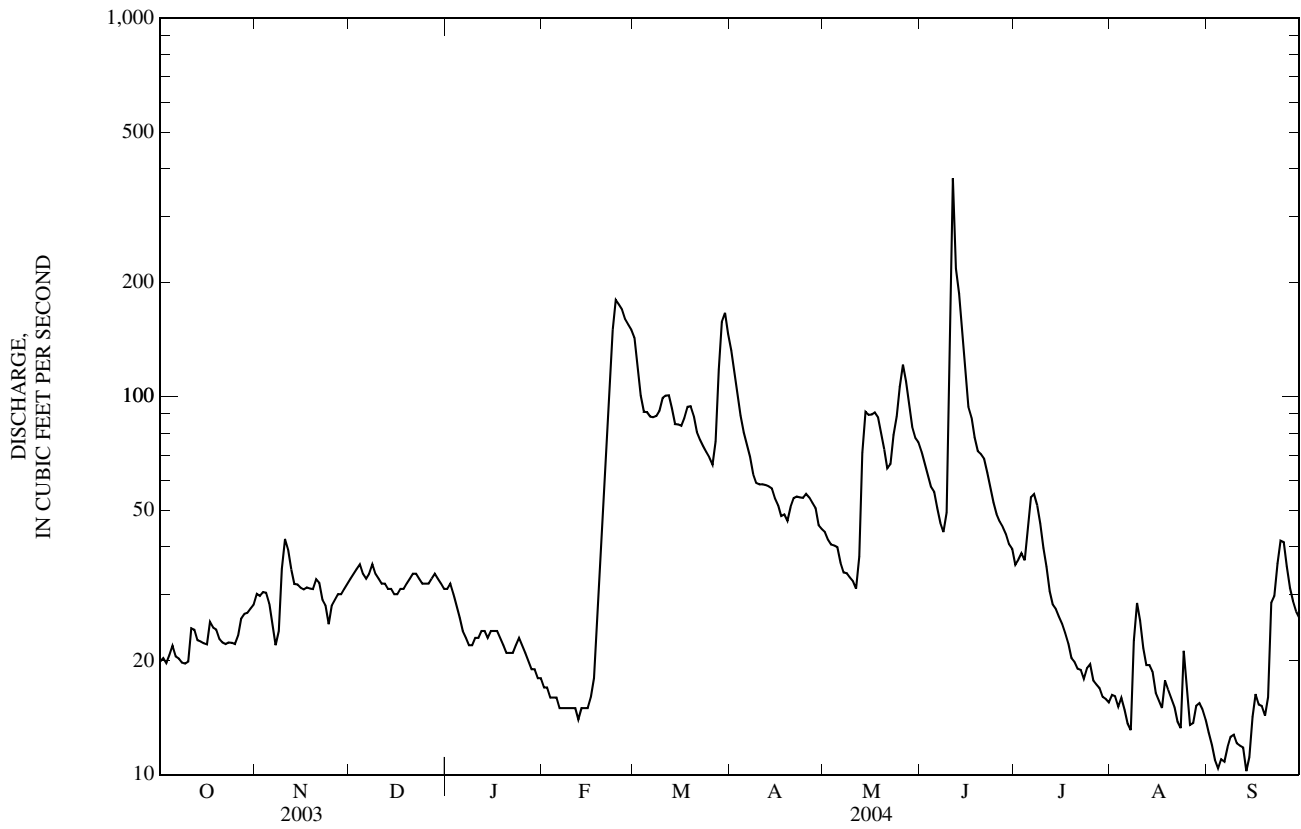
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1940, 1948 - 2004, BY WATER YEAR (WY)

MEAN	40.8	47.2	39.0	33.7	75.8	175	164	146	107	64.6	36.3	31.0
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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1939-1940, 1948-2004	
ANNUAL TOTAL	18,718.5		16,659		^a 80.0	
ANNUAL MEAN	51.3		45.5		188	
HIGHEST ANNUAL MEAN					19.5 1997	
LOWEST ANNUAL MEAN					4,930 Mar 30, 1952	
HIGHEST DAILY MEAN	302	May 10	378	Jun 11	0.00	Jan 10, 1949
LOWEST DAILY MEAN	7.8	Sep 9	10	Sep 4	0.00	Jan 10, 1949
ANNUAL SEVEN-DAY MINIMUM	8.4	Sep 8	11	Sep 1	0.00	Jan 10, 1949
MAXIMUM PEAK FLOW			576		^c 5,430 Mar 31, 1952	
MAXIMUM PEAK STAGE			3.73		^d 13.50 Mar 25, 1950	
ANNUAL RUNOFF (AC-FT)	37,130		33,040		57,980	
10 PERCENT EXCEEDS	102		91		164	
50 PERCENT EXCEEDS	42		31		43	
90 PERCENT EXCEEDS	13		15		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, 13.08 ft.
- d Backwater from ice.
- e Estimated.



06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD

LOCATION.--Lat 42°51'21", long 97°53'06", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ 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.

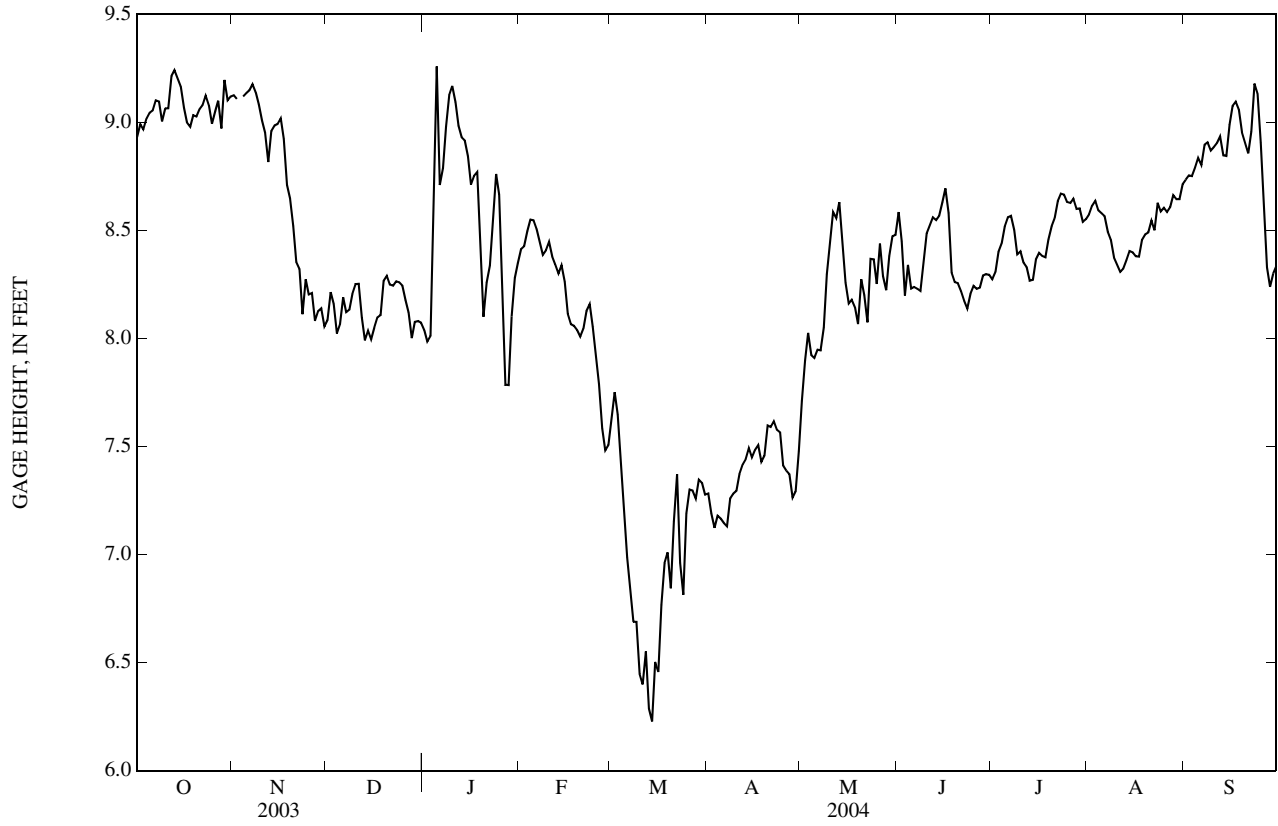
GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above NGVD of 1929.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.93	9.13	8.08	8.04	8.41	7.62	7.28	7.71	8.58	8.27	8.57	8.73
2	8.99	9.11	8.21	7.99	8.43	7.75	7.19	7.90	8.45	8.31	8.61	8.75
3	8.97	---	8.16	8.01	8.50	7.65	7.12	8.03	8.20	8.40	8.64	8.75
4	9.02	9.12	8.02	8.64	8.55	7.42	7.18	7.92	8.34	8.44	8.59	8.79
5	9.04	9.14	8.06	9.26	8.55	7.20	7.17	7.91	8.23	8.52	8.58	8.84
6	9.06	9.15	8.19	8.71	8.51	6.99	7.15	7.95	8.24	8.56	8.57	8.80
7	9.10	9.18	8.12	8.79	8.44	6.84	7.13	7.95	8.23	8.57	8.49	8.90
8	9.10	9.14	8.13	8.98	8.39	6.69	7.26	8.05	8.22	8.50	8.46	8.91
9	9.01	9.08	8.21	9.13	8.41	6.69	7.28	8.30	8.35	8.39	8.37	8.87
10	9.06	9.01	8.25	9.17	8.45	6.45	7.29	8.45	8.49	8.40	8.34	8.89
11	9.07	8.95	8.25	9.09	8.38	6.40	7.37	8.59	8.52	8.35	8.31	8.90
12	9.21	8.82	8.10	8.98	8.34	6.55	7.42	8.56	8.56	8.33	8.32	8.93
13	9.24	8.96	7.99	8.93	8.30	6.29	7.44	8.63	8.55	8.27	8.36	8.85
14	9.20	8.99	8.04	8.92	8.34	6.23	7.49	8.45	8.57	8.27	8.40	8.84
15	9.17	8.99	8.00	8.84	8.26	6.50	7.45	8.26	8.63	8.37	8.40	8.99
16	9.07	9.02	8.05	8.71	8.11	6.46	7.49	8.16	8.69	8.40	8.38	9.08
17	9.00	8.92	8.10	8.75	8.07	6.77	7.51	8.18	8.58	8.38	8.38	9.10
18	8.98	8.71	8.11	8.77	8.06	6.96	7.43	8.14	8.30	8.38	8.46	9.06
19	9.03	8.65	8.27	8.39	8.04	7.01	7.46	8.07	8.26	8.46	8.48	8.95
20	9.03	8.52	8.29	8.10	8.01	6.84	7.60	8.27	8.26	8.52	8.49	8.91
21	9.06	8.35	8.25	8.26	8.05	7.15	7.59	8.20	8.22	8.56	8.55	8.86
22	9.08	8.32	8.24	8.34	8.13	7.37	7.62	8.07	8.17	8.64	8.50	8.96
23	9.12	8.11	8.26	8.56	8.16	6.96	7.58	8.37	8.14	8.67	8.63	9.18
24	9.08	8.27	8.26	8.76	8.05	6.81	7.57	8.37	8.21	8.67	8.59	9.13
25	8.99	8.20	8.24	8.67	7.91	7.19	7.41	8.25	8.24	8.63	8.61	8.91
26	9.05	8.21	8.18	8.24	7.79	7.30	7.39	8.44	8.23	8.63	8.59	8.59
27	9.10	8.08	8.12	7.79	7.58	7.30	7.37	8.29	8.23	8.65	8.61	8.33
28	8.97	8.13	8.00	7.78	7.48	7.26	7.26	8.22	8.29	8.60	8.66	8.24
29	9.20	8.14	8.08	8.10	7.51	7.35	7.29	8.38	8.30	8.60	8.64	8.30
30	9.10	8.06	8.08	8.28	---	7.33	7.48	8.47	8.29	8.54	8.64	8.33
31	9.12	---	8.07	8.35	---	7.28	---	8.48	---	8.55	8.71	---
MEAN	9.07	---	8.14	8.56	8.18	6.99	7.38	8.23	8.35	8.48	8.51	8.82
MAX	9.24	---	8.29	9.26	8.55	7.75	7.62	8.63	8.69	8.67	8.71	9.18
MIN	8.93	---	7.99	7.78	7.48	6.23	7.12	7.71	8.14	8.27	8.31	8.24

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, 422,000 acre-ft, Sept. 23; minimum contents, 337,000 acre-ft, May 8.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,207.35	393,000	--
Oct. 31	1,207.64	401,000	+8,000
Nov. 30	1,207.63	401,000	0
Dec. 31	1,207.44	393,000	-6,000
CAL YR 2003	--	--	+11,000
Jan. 31	1,205.82	352,000	-43,000
Feb. 29	1,207.10	388,000	+36,000
Mar. 31	1,206.25	364,000	-24,000
Apr. 30	1,205.77	352,000	-12,000
May 31	1,207.22	389,000	+37,000
June 30	1,205.79	352,000	-37,000
July 31	1,207.21	390,000	+38,000
Aug. 31	1,207.32	393,000	+3,000
Sept. 30	1,207.06	386,000	-7,000
WTR YR 2004	--	--	-7,000

NOTE.--Lake frozen over Dec. 16 to Mar. 19.

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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.

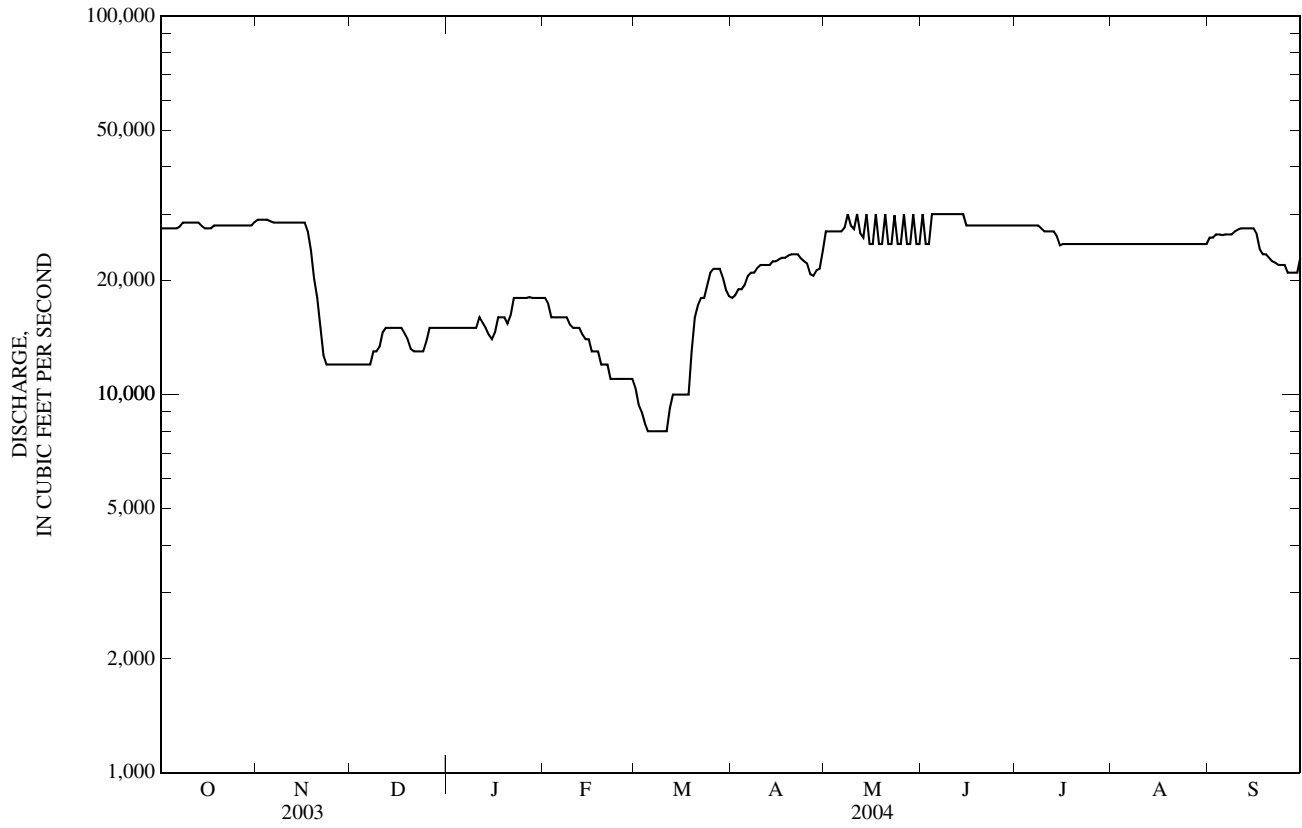
GAGE.--Water-stage recorder. Datum of gage is 1,139.68 ft above NGVD of 1929. Prior to Sept. 20, 1932, nonrecording gage, and Sept. 20, 1932, to Mar. 9, 1967, water-stage recorder at present site and at datum 20.0 ft higher.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27,500	29,000	12,000	15,000	18,000	10,400	18,000	27,000	30,000	28,000	25,000	26,000
2	27,500	29,000	12,000	15,000	17,400	9,400	18,300	27,000	25,000	28,000	25,000	26,000
3	27,500	29,000	12,000	15,000	16,000	9,000	19,000	27,000	25,000	28,000	25,000	26,500
4	27,500	29,000	12,000	15,000	16,000	8,400	19,000	27,000	30,000	28,000	25,000	26,500
5	27,500	28,700	12,000	15,000	16,000	8,000	19,500	27,000	30,000	28,000	25,000	26,400
6	27,500	28,500	12,000	15,000	16,000	8,000	20,600	27,000	30,000	28,000	25,000	26,500
7	27,800	28,500	12,000	15,000	16,000	8,000	21,000	27,600	30,000	28,000	25,000	26,500
8	28,500	28,500	13,000	15,000	16,000	8,000	21,000	30,000	30,000	28,000	25,000	26,500
9	28,500	28,500	13,000	15,000	15,300	8,000	21,600	28,000	30,000	27,500	25,000	27,000
10	28,500	28,500	13,400	15,000	15,000	8,000	22,000	27,400	30,000	27,000	25,000	27,300
11	28,500	28,500	14,600	16,000	15,000	8,000	22,000	30,000	30,000	27,000	25,000	27,500
12	28,500	28,500	15,000	15,500	15,000	9,200	22,000	26,700	30,000	27,000	25,000	27,500
13	28,500	28,500	15,000	15,000	14,400	10,000	22,000	26,000	30,000	27,000	25,000	27,500
14	27,900	28,500	15,000	14,400	14,000	10,000	22,500	30,000	30,000	26,200	25,000	27,500
15	27,500	28,500	15,000	14,000	14,000	10,000	22,500	25,000	28,000	24,800	25,000	27,500
16	27,500	28,500	15,000	14,600	13,000	10,000	22,800	25,000	28,000	25,000	25,000	26,600
17	27,500	27,000	15,000	16,000	13,000	10,000	23,000	30,000	28,000	25,000	25,000	24,200
18	28,000	24,000	14,500	16,000	13,000	10,000	23,000	25,000	28,000	25,000	25,000	23,500
19	28,000	20,300	14,000	16,000	12,000	13,000	23,300	25,000	28,000	25,000	25,000	23,500
20	28,000	18,000	13,200	15,400	12,000	16,000	23,500	30,000	28,000	25,000	25,000	23,000
21	28,000	15,000	13,000	16,200	12,000	17,200	23,500	25,000	28,000	25,000	25,000	22,500
22	28,000	12,700	13,000	18,000	11,000	18,000	23,500	25,000	28,000	25,000	25,000	22,300
23	28,000	12,000	13,000	18,000	11,000	18,000	22,900	29,800	28,000	25,000	25,000	22,000
24	28,000	12,000	13,000	18,000	11,000	19,500	22,500	25,000	28,000	25,000	25,000	22,000
25	28,000	12,000	13,800	18,000	11,000	21,000	22,200	25,000	28,000	25,000	25,000	22,000
26	28,000	12,000	15,000	18,000	11,000	21,500	20,800	30,000	28,000	25,000	25,000	21,000
27	28,000	12,000	15,000	18,100	11,000	21,500	20,600	25,000	28,000	25,000	25,000	21,000
28	28,000	12,000	15,000	18,000	11,000	21,500	21,300	25,000	28,000	25,000	25,000	21,000
29	28,000	12,000	15,000	18,000	11,000	20,400	21,500	30,000	28,000	25,000	25,000	21,000
30	28,000	12,000	15,000	18,000	---	18,900	24,000	25,000	28,000	25,000	25,000	23,000
31	28,600	---	15,000	18,000	---	18,200	---	25,000	---	25,000	25,000	---
TOTAL	866,800	671,200	425,500	499,200	397,100	407,100	649,400	837,500	858,000	810,500	775,000	741,300
MEAN	27,960	22,370	13,730	16,100	13,690	13,130	21,650	27,020	28,600	26,150	25,000	24,710
MAX	28,600	29,000	15,000	18,100	18,000	21,500	24,000	30,000	30,000	28,000	25,000	27,500
MIN	27,500	12,000	12,000	14,000	11,000	8,000	18,000	25,000	25,000	24,800	25,000	21,000
AC-FT	1,719,000	1,331,000	844,000	990,200	787,600	807,500	1,288,000	1,661,000	1,702,000	1,608,000	1,537,000	1,470,000

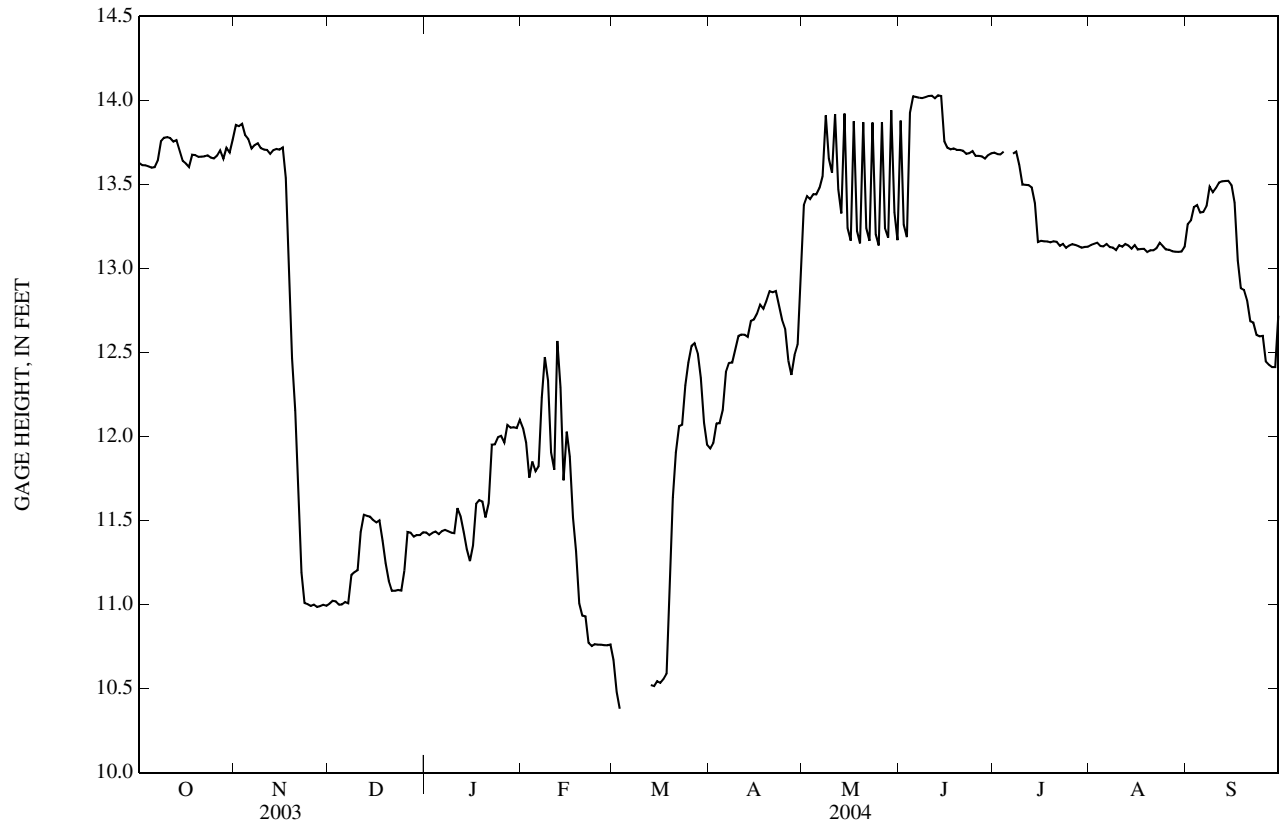


MISSOURI-LEWIS AND CLARK RIVER BASIN
06467500 MISSOURI RIVER AT YANKTON, SD—Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.63	13.85	11.00	11.43	12.05	10.67	11.93	13.38	13.88	13.69	13.14	13.26
2	13.62	13.85	11.02	11.41	11.96	10.48	11.96	13.43	13.26	13.68	13.15	13.29
3	13.61	13.86	11.02	11.43	11.76	10.38	12.08	13.41	13.19	13.68	13.15	13.37
4	13.61	13.79	11.00	11.43	11.85	---	12.08	13.44	13.93	13.69	13.13	13.38
5	13.60	13.77	11.00	11.42	11.79	---	12.16	13.44	14.02	---	13.13	13.33
6	13.60	13.71	11.01	11.44	11.82	---	12.38	13.48	14.02	---	13.15	13.34
7	13.64	13.73	11.01	11.44	12.23	---	12.44	13.55	14.02	13.68	13.13	13.37
8	13.76	13.75	11.18	11.44	12.47	---	12.44	13.91	14.01	13.70	13.12	13.49
9	13.78	13.72	11.19	11.43	12.33	---	12.51	13.65	14.02	13.62	13.11	13.45
10	13.78	13.71	11.21	11.43	11.90	---	12.60	13.57	14.03	13.50	13.14	13.48
11	13.78	13.71	11.43	11.57	11.80	---	12.61	13.92	14.03	13.50	13.13	13.51
12	13.76	13.68	11.53	11.53	12.57	---	12.61	13.47	14.01	13.50	13.14	13.52
13	13.76	13.70	11.53	11.43	12.29	10.52	12.59	13.33	14.03	13.48	13.14	13.52
14	13.70	13.71	11.52	11.33	11.74	10.51	12.69	13.92	14.03	13.39	13.12	13.52
15	13.64	13.71	11.50	11.26	12.03	10.54	12.70	13.24	13.76	13.16	13.14	13.50
16	13.62	13.72	11.49	11.35	11.88	10.53	12.73	13.17	13.72	13.16	13.11	13.39
17	13.60	13.54	11.50	11.60	11.52	10.56	12.78	13.88	13.71	13.16	13.12	13.05
18	13.68	13.05	11.38	11.62	11.32	10.59	12.76	13.22	13.71	13.16	13.12	12.88
19	13.67	12.47	11.25	11.61	11.01	11.08	12.81	13.15	13.70	13.15	13.10	12.87
20	13.66	12.15	11.14	11.52	10.93	11.64	12.87	13.87	13.70	13.16	13.11	12.81
21	13.67	11.64	11.08	11.60	10.93	11.90	12.86	13.24	13.70	13.16	13.11	12.69
22	13.67	11.19	11.08	11.95	10.77	12.06	12.87	13.16	13.68	13.13	13.12	12.68
23	13.67	11.01	11.09	11.95	10.75	12.07	12.78	13.87	13.69	13.15	13.15	12.61
24	13.66	11.00	11.08	12.00	10.76	12.30	12.69	13.20	13.70	13.12	13.13	12.60
25	13.65	10.99	11.20	12.00	10.76	12.44	12.64	13.14	13.67	13.14	13.11	12.60
26	13.67	11.00	11.43	11.96	10.76	12.54	12.45	13.87	13.67	13.14	13.11	12.45
27	13.70	10.99	11.43	12.07	10.76	12.56	12.37	13.24	13.67	13.14	13.10	12.43
28	13.65	10.99	11.40	12.05	10.76	12.50	12.48	13.18	13.65	13.13	13.10	12.41
29	13.72	11.00	11.41	12.06	10.76	12.35	12.55	13.94	13.67	13.12	13.10	12.41
30	13.69	10.99	11.41	12.05	---	12.08	12.92	13.33	13.69	13.13	13.10	12.72
31	13.77	---	11.43	12.10	---	11.95	---	13.17	---	13.13	13.13	---
MEAN	13.68	12.73	11.26	11.64	11.53	---	12.54	13.48	13.79	---	13.12	13.06
MAX	13.78	13.86	11.53	12.10	12.57	---	12.92	13.94	14.03	---	13.15	13.52
MIN	13.60	10.99	11.00	11.26	10.75	---	11.93	13.14	13.19	---	13.10	12.41

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



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 the November sample collected during water year 2004, a field duplicate sample was collected for suspended-sediment analyses for quality-control purposes. On May 27, 2004, in addition to the primary sample (time 1100), a field duplicate sample (time 1110) for analysis of inorganic and organic constituents was collected for quality-control purposes. The analytical results for all duplicate samples are noted in the water-quality results. On Apr. 22, 2004, a duplicate sample was collected and spiked with various known concentrations of pesticides; results of the spiked samples are available from the USGS South Dakota District office in Rapid City, S. Dak. On Nov. 20, 2003, and Jan. 22, 2004, 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 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Specific conductance, wat unf 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Turbidity, IR LED light, det ang 90 deg, FNU (63680)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Hardness, water, mg/L as CaCO3 (00900)	Noncarbohardness, wat flt field, mg/L as CaCO3 (00904)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)
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)	Silica, water, fltrd, mg/L (00955)
NOV 20...	167	56.6	24.3	70.9	38	2	4.85	193	5	187	11.1	.6	7.76
a20...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC 17...	169	57.2	22.5	64.9	37	2	4.81	--	--	179	10.6	.6	10.2
JAN 22...	172	58.3	22.8	64.4	36	2	4.90	--	--	184	11.1	.6	7.52
FEB 25...	174	60.8	23.0	60.4	34	2	5.13	210	.0	178	10.4	.6	10.8
APR 22...	173	58.0	22.0	66.0	37	2	4.79	206	3	178	10.8	.6	7.72
MAY 27...	169	57.0	22.0	62.8	36	2	4.94	185	5	176	10.8	.6	7.43
b27...	169	58.8	22.4	64.3	36	2	5.07	185	6	175	10.8	.6	7.57
JUL 22...	168	55.6	21.6	62.4	37	2	5.03	187	7	186	10.8	.7	7.59
SEP 23...	161	51.2	20.1	61.0	38	2	4.76	178	4	174	10.6	.6	6.75

06467500 MISSOURI RIVER AT YANKTON, SD—Continued

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

Date	Residue	Residue	Ammonia		Ammonia		Nitrite		Nitrate	Phos-	Phos-	Ortho-	Arsenic
	water, fltrd, sum of consti- tuents mg/L (70301)	on evap. at 180degC wat flt mg/L (70300)	Residue water, fltrd, tons/d (70302)	Ammonia water, fltrd, mg/L as N (00608)	+ org-N, water, unfltrd mg/L as N (00625)	+ org-N, water, fltrd, mg/L as N (00623)	Nitrite water, fltrd, mg/L as N (00613)	+ nitrate water fltrd, mg/L as N (00631)					
NOV 20... a20...	464 --	462 --	24,300 --	<.010 --	.24 --	.19 --	E.001 --	.049 --	-- --	.017 --	E.003 --	<.006 --	1.9 --
DEC 17...	451	444	18,000	<.010	.23	.21	E.001	.205	--	.016	.005	<.006	2.0
JAN 22...	454	473	23,000	<.010	.25	.22	E.001	.123	--	.014	.005	<.006	1.8
FEB 25...	455	473	14,100	.012	.25	.17	<.002	.195	--	.014	.009	E.005	2.1
APR 22...	454	466	29,600	<.010	.29	.19	.002	.017	.02	.018	E.004	<.006	1.8
MAY 27... b27...	438 442	463 463	31,300 31,300	<.010 <.010	.27 .27	.22 .22	E.001 E.001	E.013 E.015	-- --	.022 .024	.004 .005	<.006 <.006	1.9 1.9
JUL 22...	449	458	30,900	--	.31	.21	--	<.04	--	.020	.006	--	2.0
SEP 23...	422	446	25,900	.015	.26	.21	E.001	E.009	--	.025	.006	<.006	2.2
Date	Boron,	Iron,	Lithium	Selen-	Stront-	Vanad-	Organic	Organic	Aceto-	Ala-	2,6-Di-	Atra-	CIAT,
	water, fltrd, ug/L (01020)	water, fltrd, ug/L (01046)	water, fltrd, ug/L (01130)	ium, water, fltrd, ug/L (01145)	ium, water, fltrd, ug/L (01080)	ium, water, fltrd, ug/L (01085)	carbon, water, fltrd, mg/L (00681)	carbon, suspnd sedimnt total, mg/L (00689)	chlor, water, fltrd, ug/L (49260)	chlor, water, fltrd, ug/L (46342)	ethyl- aniline water fltrd 0.7u GF ug/L (82660)	azine, water, fltrd, ug/L (39632)	water, fltrd, ug/L (04040)
NOV 20... a20...	134 --	<6 --	50.5 --	1.5 --	555 --	1.8 --	3.1 --	.7 --	<.006 --	<.005 --	<.006 --	.015 --	<.006 --
DEC 17...	122	<6	45.7	1.7	518	1.6	2.5	.6	<.006	<.005	<.006	.017	E.006
JAN 22...	128	<6	45.3	1.8	527	1.5	3.2	.4	.006	<.005	<.006	.022	E.007
FEB 25...	141	<6	54.4	1.6	522	1.7	3.0	.2	<.006	<.005	<.006	.021	E.005
APR 22...	132	<6	47.0	1.3	553	2.1	3.2	.9	.009	<.005	<.006	.022	E.007
MAY 27... b27...	119 120	<6 <6	43.6 45.0	1.4 1.3	516 522	1.8 2.0	3.3 2.9	.9 .7	.015 .014	<.005 <.005	<.006 <.006	.036 .035	E.007 E.007
JUL 22...	126	<6	46.8	1.5	536	2.6	2.8	.9	.010	.011	<.006	.066	E.010
SEP 23...	113	<6	48.0	1.4	495	2.6	2.9	.9	<.006	<.006	<.006	.030	<.006

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

Date	Azin-phos-methyl, water, fltrd 0.7u GF (82686)	Ben-flur-alin, water, fltrd 0.7u GF (82673)	alpha-HCH, water, fltrd, ug/L (34253)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF (82680)	Carbo-furan, water, fltrd 0.7u GF (82674)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF (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 (82677)	EPTC, water, fltrd 0.7u GF (82668)
NOV 20...	<.050	<.010	<.005	<.004	<.041	<.020	<.018	<.003	<.003	<.005	<.009	<.02	<.004
a20...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC 17...	<.050	<.010	<.005	<.004	<.041	<.020	<.018	<.003	<.003	<.005	<.009	<.02	<.004
JAN 22...	<.050	<.010	<.005	<.004	<.041	<.020	<.018	<.003	<.003	<.005	<.009	<.02	<.004
FEB 25...	<.050	<.010	<.005	<.004	<.041	<.020	<.018	<.003	<.003	<.005	<.009	<.02	<.004
APR 22...	<.050	<.010	<.005	<.004	<.041	<.020	<.018	<.003	<.003	<.005	<.009	<.02	<.004
MAY 27...	<.050	<.010	<.005	<.004	<.041	<.020	<.018	<.003	<.003	<.005	<.009	<.02	<.004
b27...	<.050	<.010	<.005	<.004	<.041	<.020	<.018	<.003	<.003	<.005	<.009	<.02	<.004
JUL 22...	<.050	<.010	<.005	<.004	<.041	<.020	<.018	<.003	<.003	<.005	<.009	<.02	<.004
SEP 23...	<.050	<.010	<.005	<.004	<.041	<.020	<.018	<.003	<.003	<.005	<.009	<.02	<.004
Date	Ethal-flur-alin, water, fltrd 0.7u GF (82663)	Etho-prop, water, fltrd 0.7u GF (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF (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 (82671)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF (82667)	Naprop-amide, water, fltrd 0.7u GF (82684)	Peb-ulate, water, fltrd 0.7u GF (82669)
NOV 20...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.003	<.010	<.015	<.007	<.004
a20...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC 17...	<.009	<.005	<.003	<.004	<.035	<.027	E.005	<.006	<.003	<.010	<.015	<.007	<.004
JAN 22...	<.009	<.005	<.003	<.004	<.035	<.027	E.007	<.006	<.003	<.010	<.015	<.007	<.004
FEB 25...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.003	<.010	<.015	<.007	<.004
APR 22...	<.009	<.005	<.003	<.004	<.035	<.027	E.009	<.006	<.003	<.010	<.015	<.007	<.004
MAY 27...	<.009	<.005	<.003	<.004	<.035	<.027	E.011	<.006	<.003	<.010	<.015	<.007	<.004
b27...	<.009	<.005	<.003	<.004	<.035	<.027	E.011	<.006	<.003	<.010	<.015	<.007	<.004
JUL 22...	<.009	<.005	<.003	<.004	<.035	<.027	.022	<.006	<.003	<.010	<.015	<.007	<.004
SEP 23...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.003	<.010	<.015	<.007	<.004

06467500 MISSOURI RIVER AT YANKTON, SD—Continued

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

Date	Pendi-methalin, water, fltrd 0.7u GF (82683)	cis-Permethrin water fltrd 0.7u GF (82687)	Phorate water fltrd 0.7u GF (82664)	Prometon, water, fltrd, ug/L (04037)	Propy-zamide, water, fltrd 0.7u GF (82676)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF (82679)	Propar-gite, water, fltrd 0.7u GF (82685)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF (82670)	Terba-cil, water, fltrd 0.7u GF (82665)	Terbu-fos, water, fltrd 0.7u GF (82675)	Thio-bencarb water fltrd 0.7u GF (82681)
NOV 20... a20...	<.022 --	<.006 --	<.011 --	M --	<.004 --	<.025 --	<.011 --	<.02 --	<.005 --	<.02 --	<.034 --	<.02 --	<.010 --
DEC 17...	<.022	<.006	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010
JAN 22...	<.022	<.006	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010
FEB 25...	<.022	<.006	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010
APR 22...	<.022	<.006	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010
MAY 27... b27...	<.022 <.022	<.006 <.006	<.011 <.011	<.01 <.01	<.004 <.004	<.025 <.025	<.011 <.011	<.02 <.02	<.005 <.005	<.02 <.02	<.034 <.034	<.02 <.02	<.010 <.010
JUL 22...	<.022	<.006	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010
SEP 23...	<.022	<.006	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010

Date	Tri-allate, water, fltrd 0.7u GF (82678)	Tri-flur-alin, water, fltrd 0.7u GF (82661)	Sus-pended sedi-ment concen-tration mg/L (80154)	Suspnd. sedi-ment, sieve diametr percent <.063mm (70331)
NOV 20... a20...	<.002 --	<.009 --	20 10	100 100
DEC 17...	<.002	<.009	--	100
JAN 22...	<.002	<.009	4	99
FEB 25...	<.002	<.009	2	97
APR 22...	<.002	<.009	12	96
MAY 27... b27...	<.002 <.002	<.009 <.009	-- 12	-- 98
JUL 22...	<.002	<.009	26	99
SEP 23...	<.002	<.009	13	100

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

Date	Time	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Potassium, water, fltrd, mg/L (00935)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Fluoride, 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- phosphate, water, fltrd, mg/L as P (00671)	
NOV c20...	1138	.01	<.008	<.10	E.004	<.01	.04	<.01	<.04	<.010	<.002	<.016	<.006	
JAN d22...	1338	--	--	--	--	--	--	--	--	--	--	--	--	
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)	Selenium, water, fltrd, ug/L (01145)	Strontium, water, fltrd, ug/L (01080)	Vanadium, 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)	Atra- zine, water, fltrd, ug/L (39632)
NOV c20...		<.2	<8	<6	<.6	<.4	<.40	E.1	--	--	--	--	--	--
JAN d22...		--	--	--	--	--	--	--	.4	<.1	<.006	<.005	<.006	<.007
Date		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)	Chlor- pyrifos 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)
NOV c20...		--	--	--	--	--	--	--	--	--	--	--	--	--
JAN d22...		<.006	<.050	<.010	<.005	<.004	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
Date		Disul- foton, water, fltrd 0.7u GF ug/L (82677)	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)
NOV c20...		--	--	--	--	--	--	--	--	--	--	--	--	--
JAN d22...		<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.003	<.010	<.015

06467500 MISSOURI RIVER AT YANKTON, SD—Continued

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

Date	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)	Propy- zamide, 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)
NOV c20...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN d22...	<.007	<.004	<.022	<.006	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
					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)					
					Date								
					NOV c20...	--	--	--	--				
					JAN d22...	<.02	<.010	<.002	<.009				

- < Less than.
- a Field duplicate suspended sample collected for quality-control purposes.
- b Field duplicate inorganic and organic constituents collected for quality-control purposes.
- c Field blank inorganic constituents collected for quality-control purposes.
- d Field blank organic constituents 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, ND, 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 current year. October 1981 to September 2001 equivalent discharge site formerly published as James River at Dakota Lake Dam near Ludden, ND. October 1981 to September 1999 (gage heights only).

GAGE.--Acoustic doppler velocity meter and 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 poor.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e120	e45	e21	e36	e11	e66	689	485	896	609	453	224
2	e80	e38	e23	e35	e11	e66	790	499	939	537	431	138
3	e149	e49	e22	e33	e11	e67	732	332	1,030	558	390	183
4	e131	e44	e27	e32	e11	e62	575	559	1,150	653	335	213
5	e133	e14	e31	e28	e13	e57	541	494	1,260	651	306	256
6	e133	e32	e28	e27	e13	e53	478	579	1,070	671	265	249
7	e130	e44	e31	e25	e14	e48	501	486	963	640	313	227
8	e81	e33	e32	e22	e15	e50	347	491	1,150	625	313	224
9	e135	e32	e31	e20	e16	e60	382	492	991	657	306	230
10	e31	e32	e30	e19	e16	e72	372	563	858	659	301	236
11	e129	e32	e28	e19	e18	e83	401	528	745	702	227	215
12	e123	e34	e26	e19	e16	e91	427	535	804	647	228	148
13	e123	e33	e25	e20	e18	e96	457	559	868	704	209	196
14	e107	e38	e25	e20	e17	e97	529	500	897	772	209	237
15	e99	e50	e27	e20	e17	e95	460	314	893	741	205	252
16	e70	e48	e25	e21	e17	e93	486	668	815	808	238	209
17	e50	e48	e25	e22	e17	106	501	640	868	749	196	230
18	e68	e49	e27	e22	e17	115	538	570	893	685	226	212
19	e62	e50	e26	e20	e21	149	497	488	788	758	192	131
20	e87	e65	e27	e19	e21	75	485	643	738	633	200	140
21	e66	e49	e28	e18	e21	106	546	556	834	652	129	339
22	e66	e37	e29	e16	e23	149	503	565	735	632	240	310
23	e58	e31	e30	e16	e22	149	543	547	759	585	209	309
24	e59	e26	e31	e16	e22	150	471	488	714	568	199	331
25	e96	e24	e32	e17	e23	163	568	540	655	517	217	285
26	e40	e23	e32	e15	e26	228	595	511	657	478	225	266
27	e56	e23	e35	e14	e30	333	515	606	667	454	236	366
28	e125	e22	e36	e13	e43	421	717	541	630	538	223	235
29	e50	e20	e37	e13	e52	435	635	573	633	544	211	200
30	e62	e21	e38	e12	---	453	511	e620	600	482	220	276
31	e50	---	e37	e12	---	554	---	812	---	474	220	---
TOTAL	2,769	1,086	902	641	572	4,742	15,792	16,784	25,500	19,383	7,872	7,067
MEAN	89.3	36.2	29.1	20.7	19.7	153	526	541	850	625	254	236
MAX	149	65	38	36	52	554	790	812	1,260	808	453	366
MIN	31	14	21	12	11	48	347	314	600	454	129	131
AC-FT	5,490	2,150	1,790	1,270	1,130	9,410	31,320	33,290	50,580	38,450	15,610	14,020

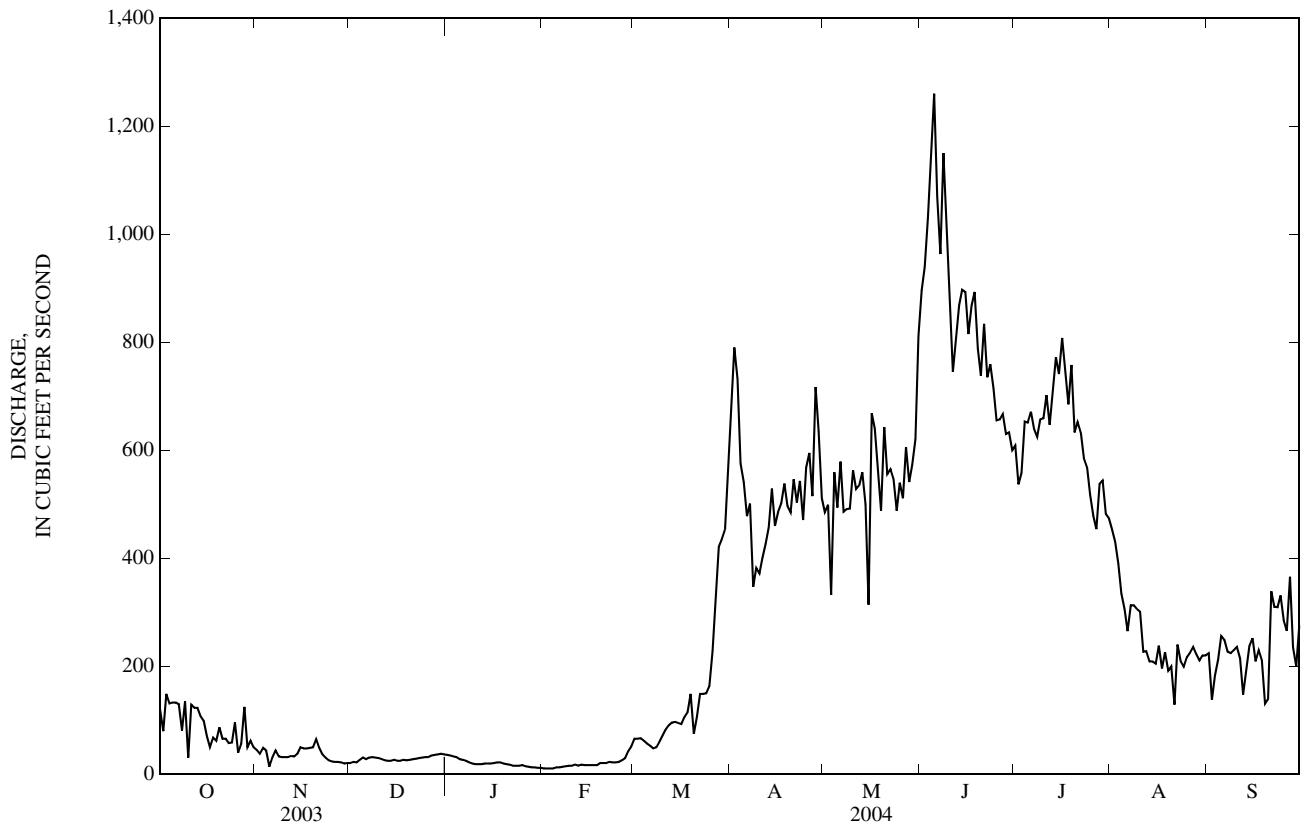
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2004, BY WATER YEAR (WY)

MEAN	195	137	63.6	28.3	29.6	322	801	603	481	400	303	242
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	0.06	0.62	26.0	33.4	9.92	2.12	0.02	0.00	0.01
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1982 - 2004 ^a	
ANNUAL TOTAL	55,724.5		103,110			
ANNUAL MEAN	153		282		301	
HIGHEST ANNUAL MEAN					969	1997
LOWEST ANNUAL MEAN					10.3	1990
HIGHEST DAILY MEAN	753	Jul 3	1,260	Jun 5	7,500	Apr 6, 1997
LOWEST DAILY MEAN	1.2	Apr 13	11	Feb 1	0.00	Oct 8, 1981
ANNUAL SEVEN-DAY MINIMUM	10	Mar 4	12	Jan 29	0.00	Jul 10, 1985
MAXIMUM PEAK FLOW			1,400	Jun 5	7,500	Apr 6, 1997
MAXIMUM PEAK STAGE			91.77	Jun 5	^b 98.04	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	110,500		204,500		218,200	
10 PERCENT EXCEEDS	483		686		939	
50 PERCENT EXCEEDS	68		188		92	
90 PERCENT EXCEEDS	13		20		0.74	

- a Historic discharge data, water years 1982-2003, from equivalent station James River at Dakota Lake Dam Near Ludden, ND (06470875).
- b From floodmark at present site.
- e Estimated.

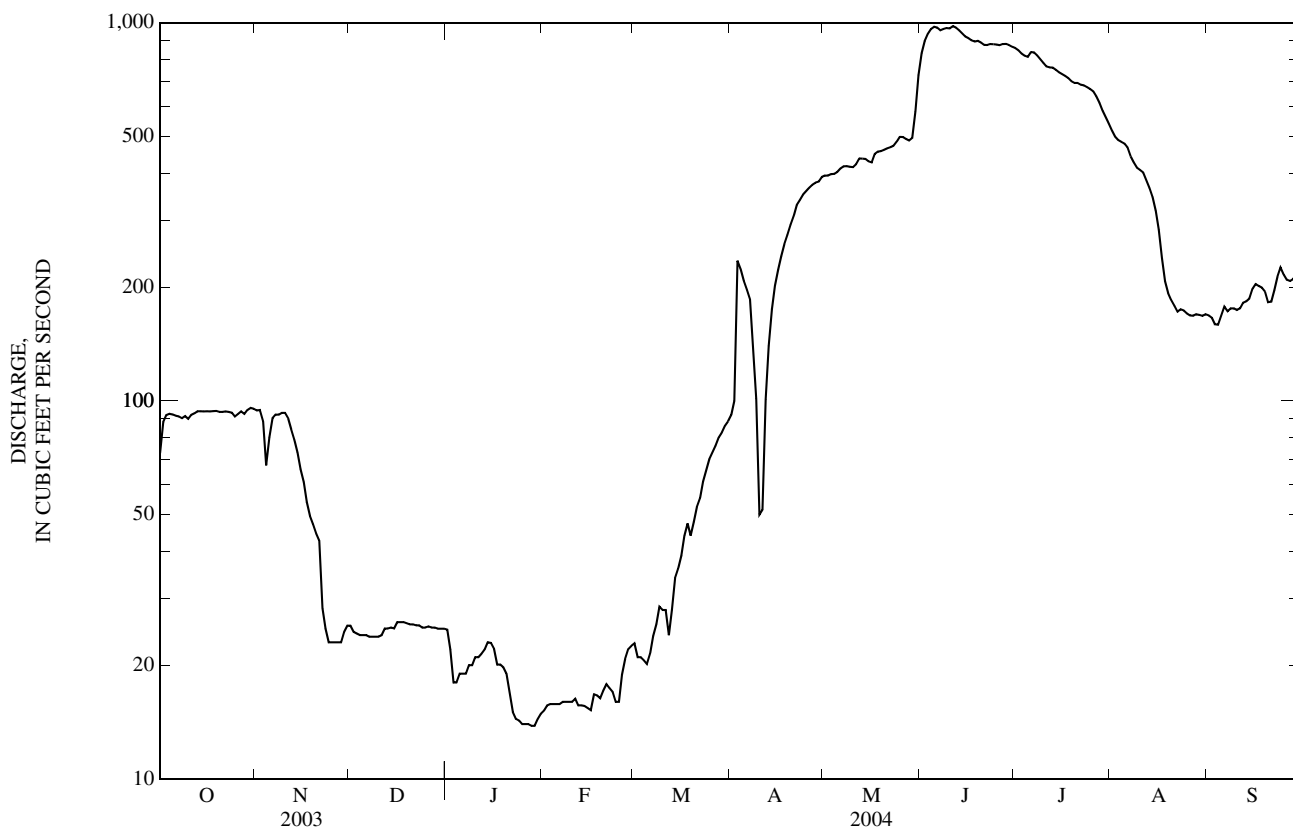


06471000 JAMES RIVER AT COLUMBIA, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1975 - 2004*	
ANNUAL TOTAL	43,225.06		94,220			
ANNUAL MEAN	118		257		246	
HIGHEST ANNUAL MEAN					856 1997	
LOWEST ANNUAL MEAN					0.06 1977	
HIGHEST DAILY MEAN	575	Jun 27	980	Jun 11	4,100	Apr 30, 1997
LOWEST DAILY MEAN	0.00	Jan 25	14	Jan 23	^a -2,400	Mar 30, 1997
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 25	14	Jan 23	^a -1,410	Mar 27, 1997
MAXIMUM PEAK FLOW			^b 980	Jun 5	^c 4,130	Apr 30, 1997
MAXIMUM PEAK STAGE			^d 12.83	Jun 20	^a 19.08	Apr 19, 1997
ANNUAL RUNOFF (AC-FT)	85,740		186,900		178,300	
10 PERCENT EXCEEDS	437		818		851	
50 PERCENT EXCEEDS	41		95		54	
90 PERCENT EXCEEDS	0.00		18		0.00	

* Regulated period only (1975-2004). See REMARKS.

- a Backwater from Elm River.
- b Gage height, 12.32 ft.
- c Gage height, 18.63 ft, backwater.
- d 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 period Aug. 25 to Sept. 22. 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.

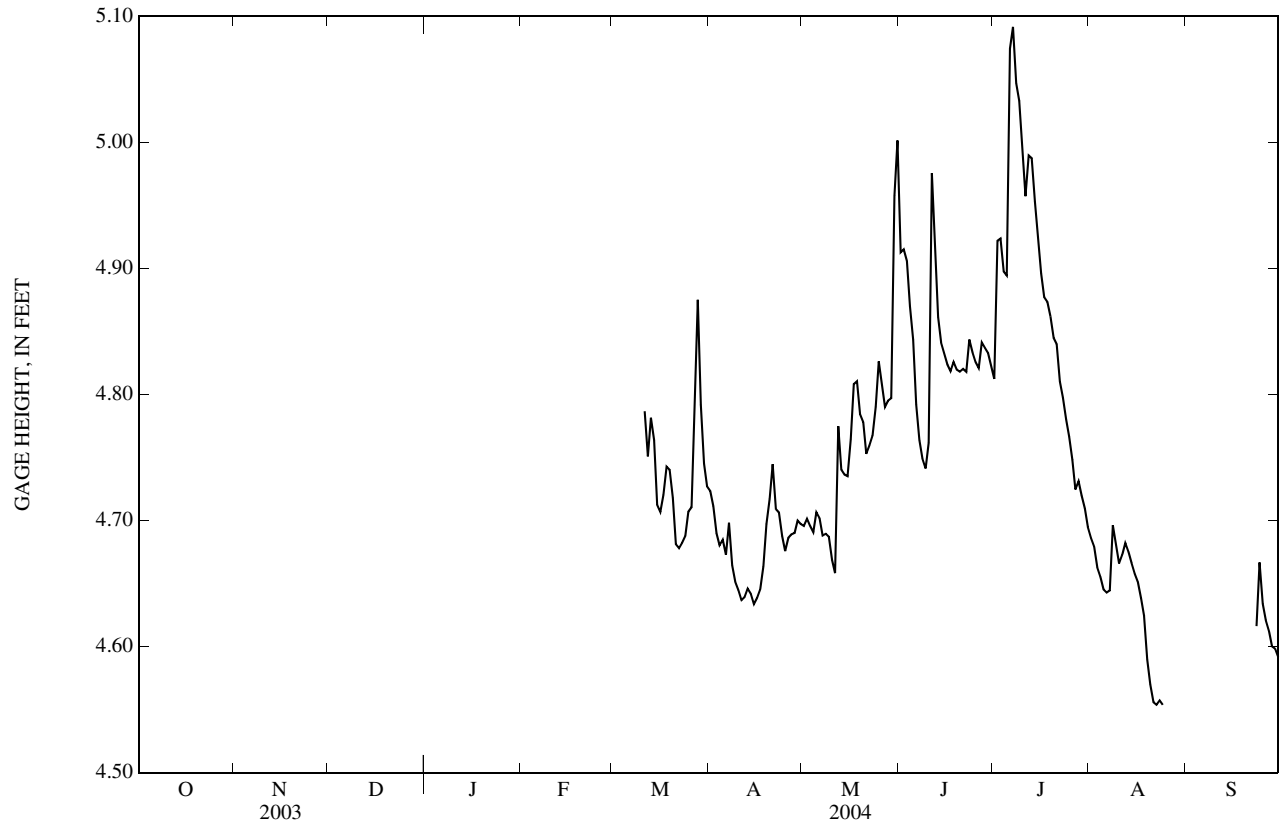
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,550 ft³/s, Mar. 24, 2001, gage height, 13.58 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7.7 ft³/s, Oct. 9, gage height, 5.80 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	4.72	4.70	4.91	4.81	4.69	---
2	---	---	---	---	---	---	4.71	4.70	4.92	4.92	4.68	---
3	---	---	---	---	---	---	4.69	4.70	4.91	4.92	4.66	---
4	---	---	---	---	---	---	4.68	4.69	4.87	4.90	4.66	---
5	---	---	---	---	---	---	4.68	4.71	4.84	4.89	4.65	---
6	---	---	---	---	---	---	4.67	4.70	4.79	5.07	4.64	---
7	---	---	---	---	---	---	4.70	4.69	4.76	5.09	4.64	---
8	---	---	---	---	---	---	4.66	4.69	4.75	5.05	4.70	---
9	---	---	---	---	---	---	4.65	4.69	4.74	5.03	4.68	---
10	---	---	---	---	---	---	4.64	4.67	4.76	5.00	4.67	---
11	---	---	---	---	---	4.79	4.64	4.66	4.98	4.96	4.67	---
12	---	---	---	---	---	4.75	4.64	4.77	4.92	4.99	4.68	---
13	---	---	---	---	---	4.78	4.65	4.74	4.86	4.99	4.68	---
14	---	---	---	---	---	4.76	4.64	4.74	4.84	4.95	4.67	---
15	---	---	---	---	---	4.71	4.63	4.74	4.83	4.93	4.66	---
16	---	---	---	---	---	4.71	4.64	4.76	4.82	4.90	4.65	---
17	---	---	---	---	---	4.72	4.65	4.81	4.82	4.88	4.64	---
18	---	---	---	---	---	4.74	4.66	4.81	4.83	4.87	4.62	---
19	---	---	---	---	---	4.74	4.70	4.78	4.82	4.86	4.59	---
20	---	---	---	---	---	4.72	4.72	4.78	4.82	4.84	4.57	---
21	---	---	---	---	---	4.68	4.74	4.75	4.82	4.84	4.56	---
22	---	---	---	---	---	4.68	4.71	4.76	4.82	4.81	4.55	---
23	---	---	---	---	---	4.68	4.71	4.77	4.84	4.80	4.56	4.62
24	---	---	---	---	---	4.69	4.69	4.79	4.83	4.78	4.55	4.67
25	---	---	---	---	---	4.71	4.68	4.83	4.83	4.77	---	4.63
26	---	---	---	---	---	4.71	4.69	4.81	4.82	4.75	---	4.62
27	---	---	---	---	---	4.78	4.69	4.79	4.84	4.72	---	4.61
28	---	---	---	---	---	4.88	4.69	4.80	4.84	4.73	---	4.60
29	---	---	---	---	---	4.79	4.70	4.80	4.83	4.72	---	4.60
30	---	---	---	---	---	4.75	4.70	4.96	4.82	4.71	---	4.59
31	---	---	---	---	---	4.73	---	5.00	---	4.69	---	---
MEAN	---	---	---	---	---	---	4.68	4.76	4.84	4.88	---	---
MAX	---	---	---	---	---	---	4.74	5.00	4.98	5.09	---	---
MIN	---	---	---	---	---	---	4.63	4.66	4.74	4.69	---	---

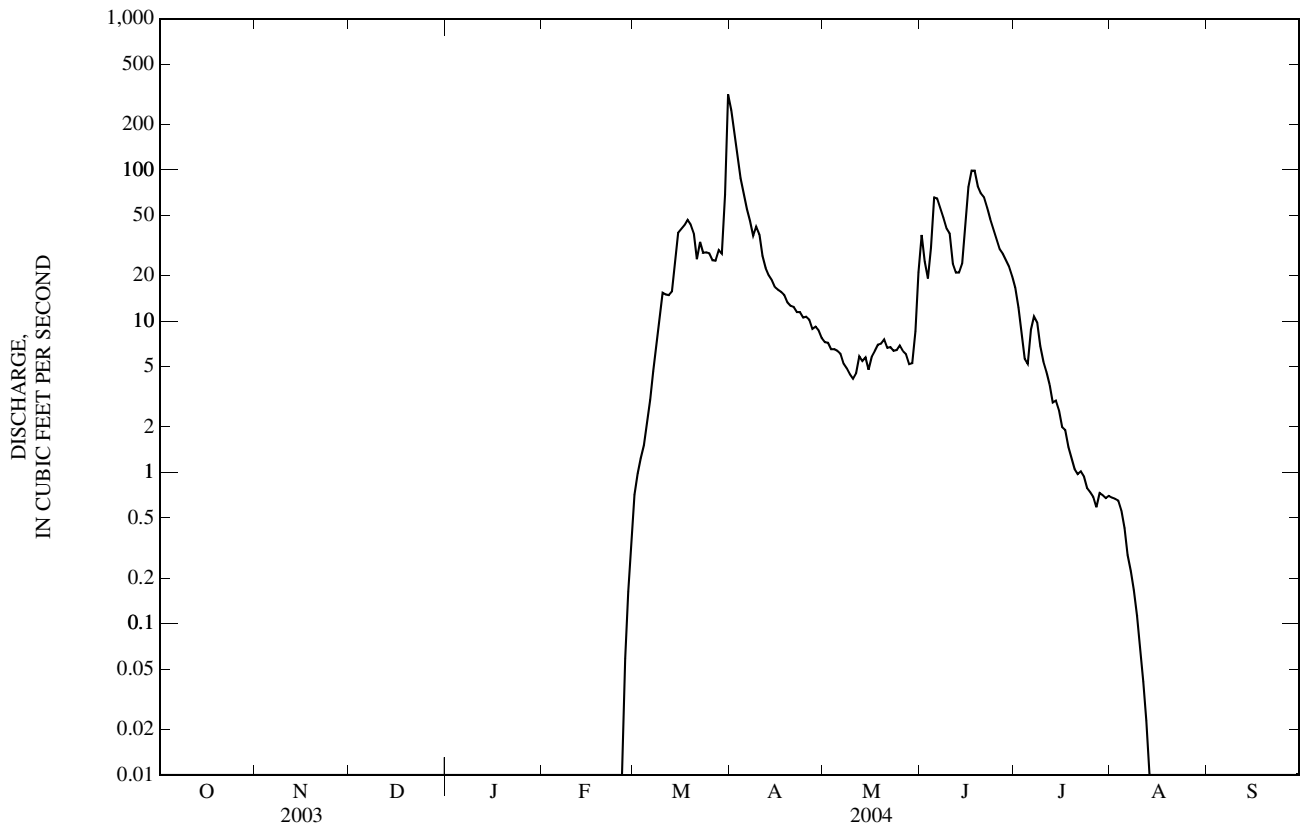
06471065 ELM RIVER NEAR FREDERICK, SD—Continued



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

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1957 - 2004	
ANNUAL TOTAL	4,210.96		3,889.20			
ANNUAL MEAN	11.5		10.6		^a 25.2	
HIGHEST ANNUAL MEAN					116	1997
LOWEST ANNUAL MEAN					^b 0.00	1959
HIGHEST DAILY MEAN	169	May 22	316	Mar 31	5,500	Apr 11, 1969
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	^c 0.00	Oct 1, 1956
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 1	0.00	Oct 1, 1956
MAXIMUM PEAK FLOW			342	Mar 31	^d 5,930	Apr 11, 1969
MAXIMUM PEAK STAGE			6.95	Mar 31	^f 16.19	Mar 29, 1997
ANNUAL RUNOFF (AC-FT)	8,350		7,710		18,270	
10 PERCENT EXCEEDS	45		34		36	
50 PERCENT EXCEEDS	0.00		0.00		0.10	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

- a Median of annual mean discharges, 15 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 Oct. 1-10, 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.01	4.2	1.7	e1.7	e0.70	e7.5	228	8.4	19	9.7	2.6	6.9
2	0.02	4.4	1.7	e1.6	e0.68	e7.0	263	6.7	22	11	2.3	6.5
3	0.01	e4.1	1.7	e1.3	e0.60	e6.5	194	6.7	37	22	2.1	6.2
4	0.01	e3.7	2.0	e1.2	e0.65	e6.0	148	6.7	30	17	1.8	6.3
5	0.01	e3.0	2.0	e1.1	e0.98	e5.5	111	7.0	24	12	1.5	7.5
6	0.01	e2.9	2.0	e1.1	e1.3	e5.0	83	7.1	36	14	1.3	8.9
7	0.02	e2.8	1.9	e1.0	e1.2	e5.0	62	6.7	66	11	1.3	6.5
8	0.02	e2.4	1.9	e1.0	e0.95	e5.5	58	6.6	66	9.4	6.4	7.5
9	0.02	e2.5	1.9	e1.0	e1.0	e7.0	38	6.4	55	8.3	7.5	6.6
10	0.10	e2.8	e1.6	e1.2	e1.4	e9.5	31	5.6	41	13	5.3	4.4
11	2.4	3.3	e1.5	e1.3	e1.4	e8.5	34	6.0	45	13	5.3	2.6
12	2.7	3.7	e1.4	e1.7	e1.3	e7.0	28	9.5	35	10	5.7	1.7
13	2.6	3.8	e1.3	e1.7	e1.5	e8.5	19	7.9	27	12	5.8	1.1
14	2.5	4.2	e1.4	e1.8	e1.1	e7.0	15	8.6	22	8.3	6.2	0.80
15	2.8	4.9	e1.4	e1.9	e0.93	e5.5	13	7.8	19	9.4	7.3	1.3
16	2.8	5.1	e1.3	e1.9	e0.92	e5.5	18	7.6	18	11	8.1	1.3
17	2.7	5.1	e1.5	e1.9	e0.99	e15	18	9.5	43	10	7.6	1.0
18	3.8	4.9	1.7	e1.5	e1.5	e35	18	9.6	103	11	7.6	0.84
19	6.1	4.6	1.6	e0.90	e1.6	64	18	9.1	105	10	6.3	0.79
20	7.3	4.2	1.6	e1.0	e1.6	71	18	7.5	92	9.4	6.3	0.77
21	6.0	e3.0	1.8	e1.3	e2.0	58	16	6.2	76	8.9	6.5	0.66
22	6.3	e2.4	1.9	e1.4	e1.9	43	15	6.7	58	8.8	7.1	0.84
23	6.0	e2.0	1.8	e1.2	e1.9	40	13	6.7	47	6.9	7.2	1.7
24	4.7	e1.8	1.8	e1.2	e1.9	40	11	8.0	38	6.4	7.3	2.2
25	3.4	e1.7	1.9	e1.2	e2.4	37	12	9.1	30	5.8	6.8	1.7
26	2.6	e1.8	1.9	e1.1	e2.7	36	9.9	7.8	24	5.3	6.8	1.5
27	3.0	e1.7	2.4	e1.1	e3.0	41	9.5	7.9	21	4.5	7.7	1.2
28	4.9	e1.6	2.4	e0.92	e3.5	42	9.6	6.6	18	4.1	7.3	0.98
29	2.6	1.9	2.4	e0.78	e5.0	38	8.4	8.5	14	3.6	7.2	0.72
30	3.3	1.9	e1.8	e0.71	---	36	9.3	20	11	3.2	6.8	0.63
31	3.8	---	e1.8	e0.68	---	34	---	23	---	2.9	7.3	---
TOTAL	82.53	96.4	55.0	39.39	46.60	736.5	1,528.7	261.5	1,242	291.9	176.3	91.63
MEAN	2.66	3.21	1.77	1.27	1.61	23.8	51.0	8.44	41.4	9.42	5.69	3.05
MAX	7.3	5.1	2.4	1.9	5.0	71	263	23	105	22	8.1	8.9
MIN	0.01	1.6	1.3	0.68	0.60	5.0	8.4	5.6	11	2.9	1.3	0.63
AC-FT	164	191	109	78	92	1,460	3,030	519	2,460	579	350	182

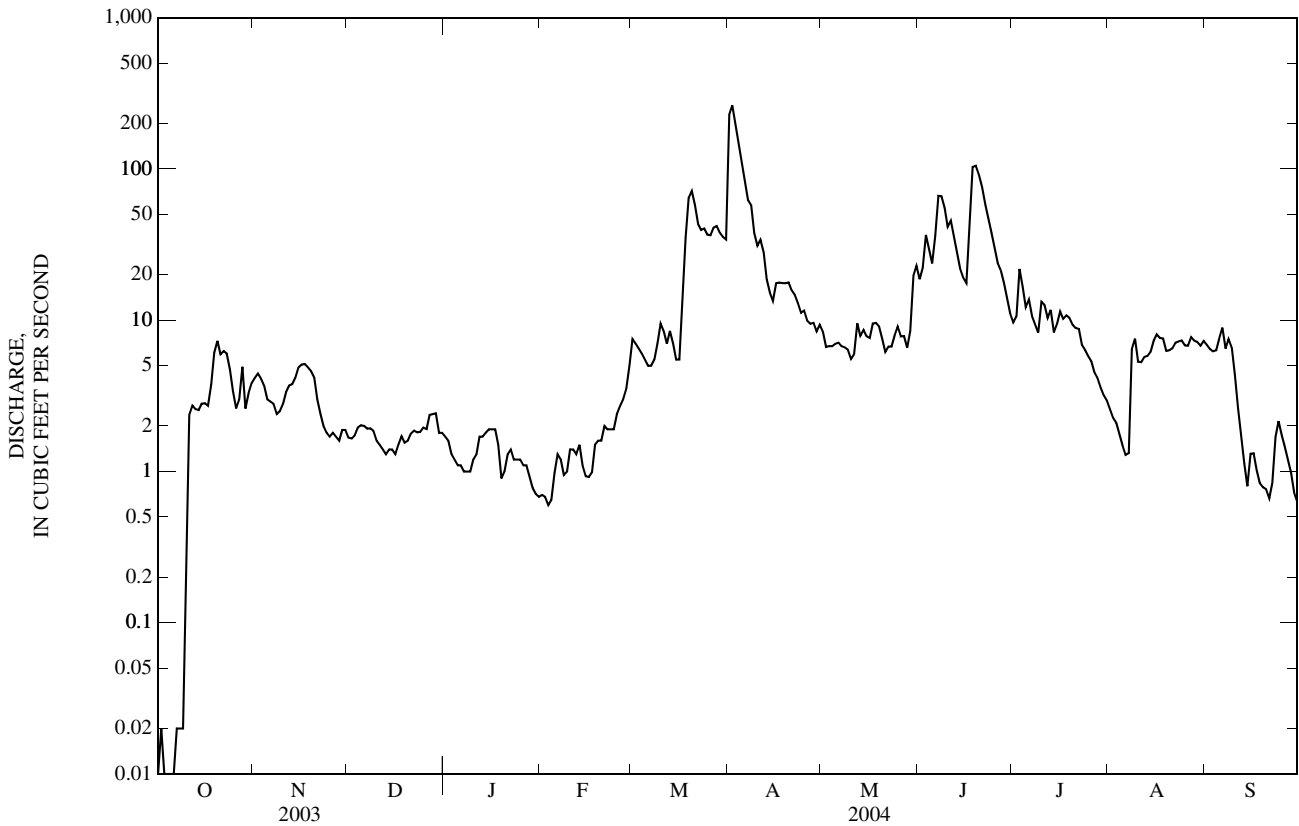
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2004, BY WATER YEAR (WY)

MEAN	8.97	7.53	6.15	3.47	7.10	171	255	85.1	50.1	51.5	14.3	9.19
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	0.00	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1946 - 2004	
ANNUAL TOTAL	3,920.81		4,648.45		a55.9	
ANNUAL MEAN	10.7		12.7		277	
HIGHEST ANNUAL MEAN					1997	
LOWEST ANNUAL MEAN					2002	
HIGHEST DAILY MEAN	156	May 23	263	Apr 2	11,900	Apr 10, 1969
LOWEST DAILY MEAN	0.00	Sep 25	0.01	Oct 1	b0.00	Jan 27, 1946
ANNUAL SEVEN-DAY MINIMUM	0.01	Oct 1	0.01	Oct 1	0.00	Jan 27, 1946
MAXIMUM PEAK FLOW			319	Apr 1	12,600	Apr 10, 1969
MAXIMUM PEAK STAGE			6.32	Apr 1	22.11	Apr 10, 1969
ANNUAL RUNOFF (AC-FT)	7,780		9,220		40,470	
10 PERCENT EXCEEDS	32		35		71	
50 PERCENT EXCEEDS	3.4		5.3		5.1	
90 PERCENT EXCEEDS	0.44		1.0		1.2	

- a Median of annual mean discharges, 34 ft³/s.
- b No flow for many days in most years prior to 1960.
- e Estimated.



06471510 ELM RIVER NEAR ORDWAY, SD

LOCATION.--Lat 45°33'45", long 98°24'45", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ 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.

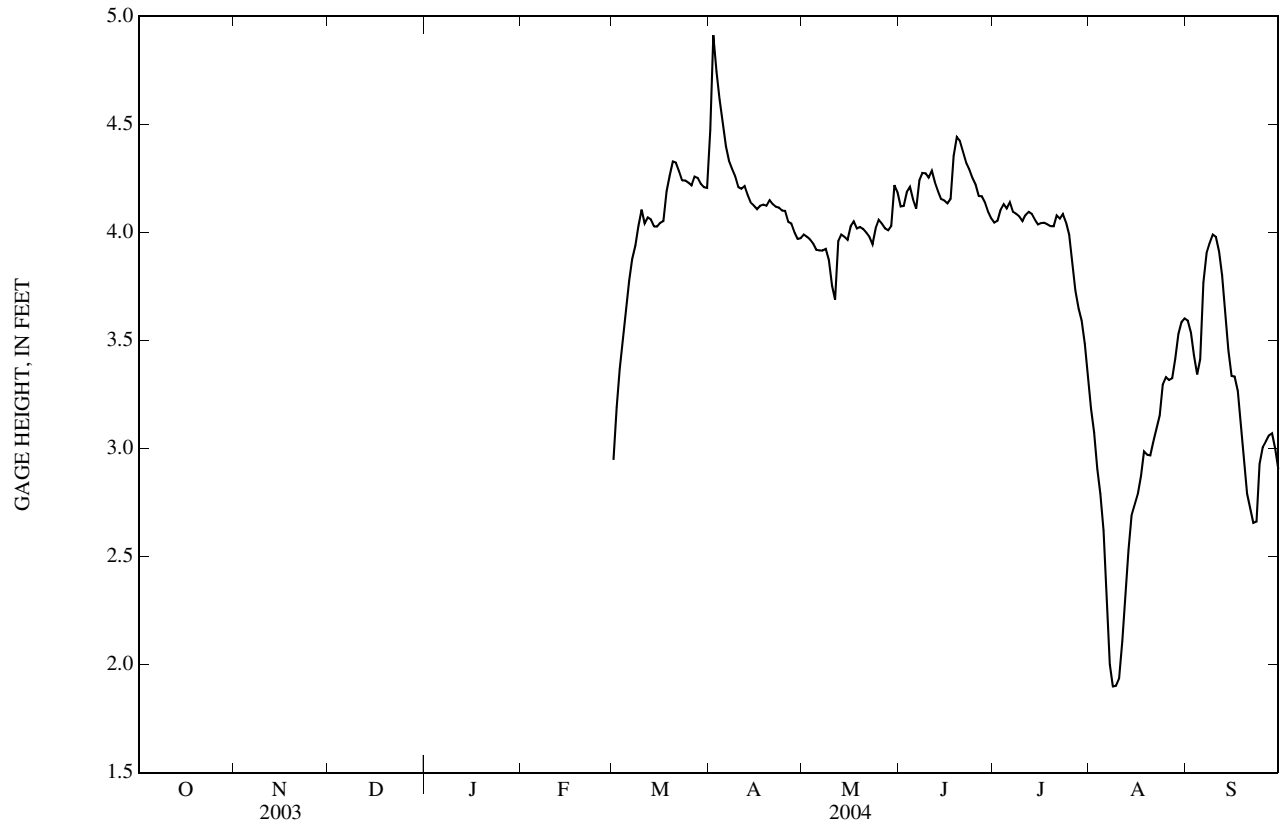
EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, observed, 8,680 ft³/s, Mar. 31, 1997, gage height, 15.10 ft; maximum gage height, observed, 15.55 ft, Mar. 29, 1997, backwater from ice.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 331 ft³/s, Apr. 2, gage height, 4.96 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	2.95	4.47	3.99	4.12	4.05	3.18	3.59
2	---	---	---	---	---	3.19	4.91	3.98	4.12	4.05	3.07	3.54
3	---	---	---	---	---	3.37	4.74	3.97	4.19	4.10	2.90	3.43
4	---	---	---	---	---	3.52	4.62	3.95	4.21	4.13	2.79	3.34
5	---	---	---	---	---	3.65	4.50	3.92	4.15	4.11	2.62	3.41
6	---	---	---	---	---	3.78	4.40	3.92	4.11	4.14	2.32	3.77
7	---	---	---	---	---	3.88	4.33	3.92	4.24	4.10	2.00	3.90
8	---	---	---	---	---	3.94	4.29	3.92	4.28	4.09	1.90	3.95
9	---	---	---	---	---	4.03	4.26	3.87	4.27	4.07	1.90	3.99
10	---	---	---	---	---	4.11	4.21	3.75	4.25	4.05	1.94	3.98
11	---	---	---	---	---	4.04	4.20	3.69	4.29	4.08	2.11	3.91
12	---	---	---	---	---	4.07	4.21	3.96	4.23	4.10	2.32	3.80
13	---	---	---	---	---	4.06	4.17	3.99	4.19	4.09	2.53	3.64
14	---	---	---	---	---	4.03	4.14	3.98	4.15	4.06	2.69	3.46
15	---	---	---	---	---	4.03	4.12	3.97	4.15	4.04	2.74	3.34
16	---	---	---	---	---	4.04	4.11	4.03	4.13	4.04	2.79	3.33
17	---	---	---	---	---	4.05	4.12	4.05	4.16	4.05	2.87	3.27
18	---	---	---	---	---	4.19	4.13	4.02	4.35	4.04	2.99	3.11
19	---	---	---	---	---	4.26	4.12	4.02	4.44	4.03	2.97	2.93
20	---	---	---	---	---	4.33	4.15	4.02	4.42	4.03	2.97	2.79
21	---	---	---	---	---	4.32	4.13	4.00	4.37	4.08	3.03	2.72
22	---	---	---	---	---	4.28	4.12	3.98	4.32	4.06	3.09	2.66
23	---	---	---	---	---	4.24	4.12	3.95	4.29	4.09	3.15	2.66
24	---	---	---	---	---	4.24	4.10	4.02	4.25	4.05	3.30	2.93
25	---	---	---	---	---	4.23	4.10	4.06	4.22	3.99	3.33	3.01
26	---	---	---	---	---	4.22	4.05	4.04	4.17	3.86	3.32	3.03
27	---	---	---	---	---	4.26	4.04	4.02	4.17	3.73	3.32	3.06
28	---	---	---	---	---	4.25	4.00	4.01	4.14	3.65	3.41	3.07
29	---	---	---	---	---	4.22	3.97	4.03	4.10	3.59	3.53	3.00
30	---	---	---	---	---	4.21	3.97	4.22	4.07	3.48	3.59	2.90
31	---	---	---	---	---	4.21	---	4.19	---	3.34	3.60	---
MEAN	---	---	---	---	---	4.01	4.23	3.98	4.22	3.98	2.85	3.32
MAX	---	---	---	---	---	4.33	4.91	4.22	4.44	4.14	3.60	3.99
MIN	---	---	---	---	---	2.95	3.97	3.69	4.07	3.34	1.90	2.66

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 good. 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.

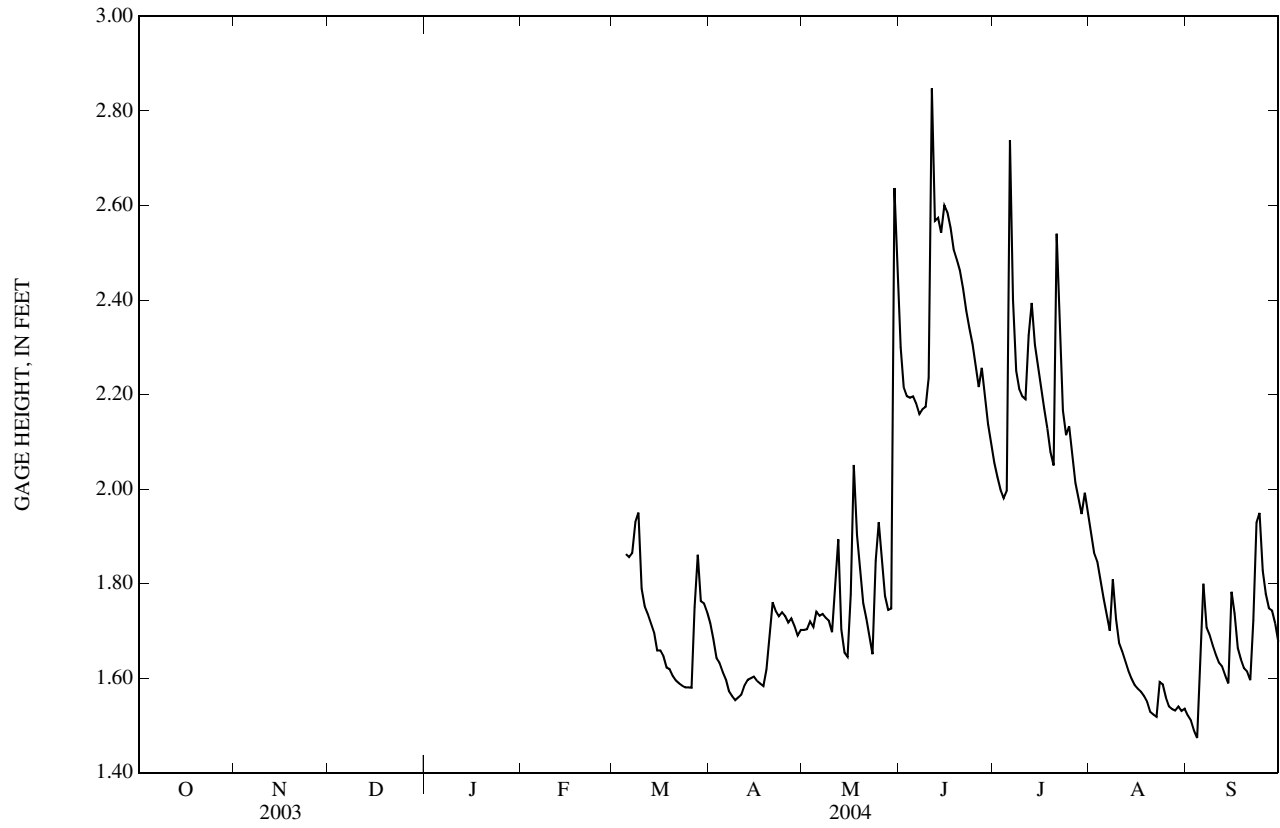
EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, observed, 389 ft³/s, Apr. 5, 1997, gage height, 6.90 ft, at different site and same datum; maximum gage height, observed, 7.27 ft, backwater from ice, Apr. 1, 1997, at different site and same datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 45 ft³/s, June 11, gage height, 3.18 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	1.72	1.70	2.30	2.06	1.90	1.52
2	---	---	---	---	---	---	1.68	1.70	2.22	2.03	1.87	1.51
3	---	---	---	---	---	---	1.64	1.72	2.20	2.00	1.85	1.49
4	---	---	---	---	---	---	1.63	1.71	2.19	1.98	1.81	1.47
5	---	---	---	---	---	1.86	1.61	1.74	2.20	2.00	1.77	1.63
6	---	---	---	---	---	1.86	1.60	1.73	2.18	2.74	1.74	1.80
7	---	---	---	---	---	1.86	1.57	1.74	2.16	2.40	1.70	1.71
8	---	---	---	---	---	1.93	1.56	1.73	2.17	2.25	1.81	1.69
9	---	---	---	---	---	1.95	1.55	1.72	2.17	2.21	1.73	1.67
10	---	---	---	---	---	1.79	1.56	1.70	2.24	2.20	1.67	1.65
11	---	---	---	---	---	1.75	1.57	1.80	2.85	2.19	1.66	1.63
12	---	---	---	---	---	1.74	1.59	1.89	2.57	2.33	1.64	1.62
13	---	---	---	---	---	1.72	1.60	1.70	2.57	2.39	1.62	1.61
14	---	---	---	---	---	1.70	1.60	1.65	2.54	2.30	1.60	1.59
15	---	---	---	---	---	1.66	1.60	1.64	2.60	2.26	1.59	1.78
16	---	---	---	---	---	1.66	1.59	1.78	2.59	2.22	1.58	1.74
17	---	---	---	---	---	1.65	1.59	2.05	2.55	2.17	1.57	1.66
18	---	---	---	---	---	1.62	1.58	1.90	2.51	2.13	1.56	1.64
19	---	---	---	---	---	1.62	1.62	1.83	2.49	2.08	1.55	1.62
20	---	---	---	---	---	1.60	1.69	1.76	2.46	2.05	1.53	1.61
21	---	---	---	---	---	1.60	1.76	1.73	2.42	2.54	1.52	1.60
22	---	---	---	---	---	1.59	1.74	1.69	2.38	2.31	1.52	1.72
23	---	---	---	---	---	1.58	1.73	1.65	2.34	2.17	1.59	1.93
24	---	---	---	---	---	1.58	1.74	1.85	2.31	2.11	1.59	1.95
25	---	---	---	---	---	1.58	1.73	1.93	2.26	2.13	1.56	1.83
26	---	---	---	---	---	1.58	1.72	1.85	2.22	2.07	1.54	1.78
27	---	---	---	---	---	1.75	1.73	1.77	2.26	2.01	1.53	1.75
28	---	---	---	---	---	1.86	1.71	1.74	2.20	1.98	1.53	1.74
29	---	---	---	---	---	1.76	1.69	1.75	2.14	1.95	1.54	1.72
30	---	---	---	---	---	1.76	1.70	2.64	2.09	1.99	1.53	1.68
31	---	---	---	---	---	1.74	---	2.49	---	1.95	1.54	---
MEAN	---	---	---	---	---	---	1.65	1.82	2.35	2.17	1.64	1.68
MAX	---	---	---	---	---	---	1.76	2.64	2.85	2.74	1.90	1.95
MIN	---	---	---	---	---	---	1.55	1.64	2.09	1.95	1.52	1.47

06471770 MOCCASIN CREEK AT ABERDEEN, SD—Continued



06471800 FOOT CREEK NEAR ABERDEEN, SD

LOCATION.--Lat 45°31'08", long 98°34'37", in 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.

DRAINAGE AREA.--173 mi².

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.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,325 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge observed, 1,670 ft³/s, Mar. 29, 1997, different site and datum.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.38	0.36	0.34	0.30	e0.14	e0.61	0.40	0.21	0.91	0.27	0.12	0.02
2	0.39	0.38	0.30	0.30	e0.15	e0.51	0.39	0.24	0.76	0.26	0.09	0.01
3	0.41	0.32	0.32	0.25	e0.16	e0.48	0.37	0.21	0.67	0.25	0.12	0.00
4	0.38	0.35	0.36	0.24	e0.17	e0.45	0.31	0.23	0.56	0.24	0.11	0.01
5	0.36	0.36	0.34	0.19	e0.19	e0.42	0.30	0.28	0.55	0.28	0.11	0.17
6	0.37	0.33	0.32	0.15	e0.21	e0.43	0.23	0.27	0.43	1.1	0.15	0.24
7	0.36	0.33	0.32	e0.16	e0.23	e0.52	0.18	0.20	0.40	0.73	0.12	0.08
8	0.36	0.33	0.30	e0.16	e0.24	e0.85	0.06	0.22	0.40	0.47	0.15	0.14
9	0.37	0.33	0.30	e0.16	e0.28	e1.1	0.20	0.23	0.41	0.44	0.13	0.14
10	0.35	0.37	0.26	e0.16	e0.30	e0.85	0.19	0.17	0.61	0.39	0.10	0.08
11	0.57	0.40	0.25	e0.16	e0.33	0.56	0.23	0.25	1.3	0.34	0.13	0.05
12	0.51	0.44	e0.18	e0.17	e0.33	0.59	0.25	0.61	0.87	0.64	0.14	0.02
13	0.43	0.37	e0.21	e0.17	e0.37	0.79	0.21	0.41	0.64	0.95	0.12	0.01
14	0.40	0.38	e0.23	e0.17	e0.37	0.59	0.23	0.24	0.53	0.47	0.11	0.02
15	0.39	0.43	e0.25	e0.18	e0.39	0.55	0.23	0.20	0.71	0.35	0.09	0.13
16	0.39	0.41	e0.26	e0.19	e0.40	0.55	0.24	0.43	0.84	0.28	0.07	0.15
17	0.39	0.37	0.27	e0.19	e0.48	0.57	0.23	0.80	0.72	0.24	0.06	0.09
18	0.41	0.38	0.31	e0.18	e0.53	0.58	0.26	0.45	0.57	0.20	0.05	0.05
19	0.40	0.37	0.28	e0.17	e0.50	0.65	0.25	0.30	0.48	0.21	0.03	0.02
20	0.39	0.37	0.29	e0.17	e0.54	0.74	0.35	0.28	0.45	0.24	0.03	0.04
21	0.35	0.33	0.29	e0.15	e0.71	0.48	0.39	0.24	0.45	1.1	0.01	0.08
22	0.34	e0.30	0.32	e0.15	e0.80	0.49	0.29	0.26	0.41	0.56	0.03	0.06
23	0.32	e0.30	0.29	e0.13	e1.0	0.51	0.27	0.25	0.40	0.28	0.07	0.42
24	0.34	e0.30	0.27	e0.13	e0.90	0.52	0.24	0.53	0.36	0.24	0.11	0.44
25	0.34	e0.30	0.29	e0.13	e0.90	0.55	0.27	0.69	0.36	0.20	0.07	0.19
26	0.33	e0.30	0.27	e0.13	e0.90	0.52	0.23	0.45	0.34	0.16	0.04	0.12
27	0.39	e0.29	0.39	e0.13	e0.93	1.1	0.19	0.39	0.46	0.14	0.04	0.10
28	0.40	e0.27	0.36	e0.11	e0.85	1.3	0.22	0.30	0.48	0.15	0.06	0.08
29	0.35	0.27	0.31	e0.10	e0.75	0.58	0.19	0.30	0.38	0.14	0.08	0.08
30	0.40	0.32	0.29	e0.11	---	0.44	0.21	4.2	0.30	0.15	0.07	0.10
31	0.39	---	0.28	e0.12	---	0.40	---	1.9	---	0.14	0.05	---
TOTAL	11.96	10.36	9.05	5.21	14.05	19.28	7.61	15.74	16.75	11.61	2.66	3.14
MEAN	0.39	0.35	0.29	0.17	0.48	0.62	0.25	0.51	0.56	0.37	0.09	0.10
MAX	0.57	0.44	0.39	0.30	1.0	1.3	0.40	4.2	1.3	1.1	0.15	0.44
MIN	0.32	0.27	0.18	0.10	0.14	0.40	0.06	0.17	0.30	0.14	0.01	0.00
AC-FT	24	21	18	10	28	38	15	31	33	23	5.3	6.2

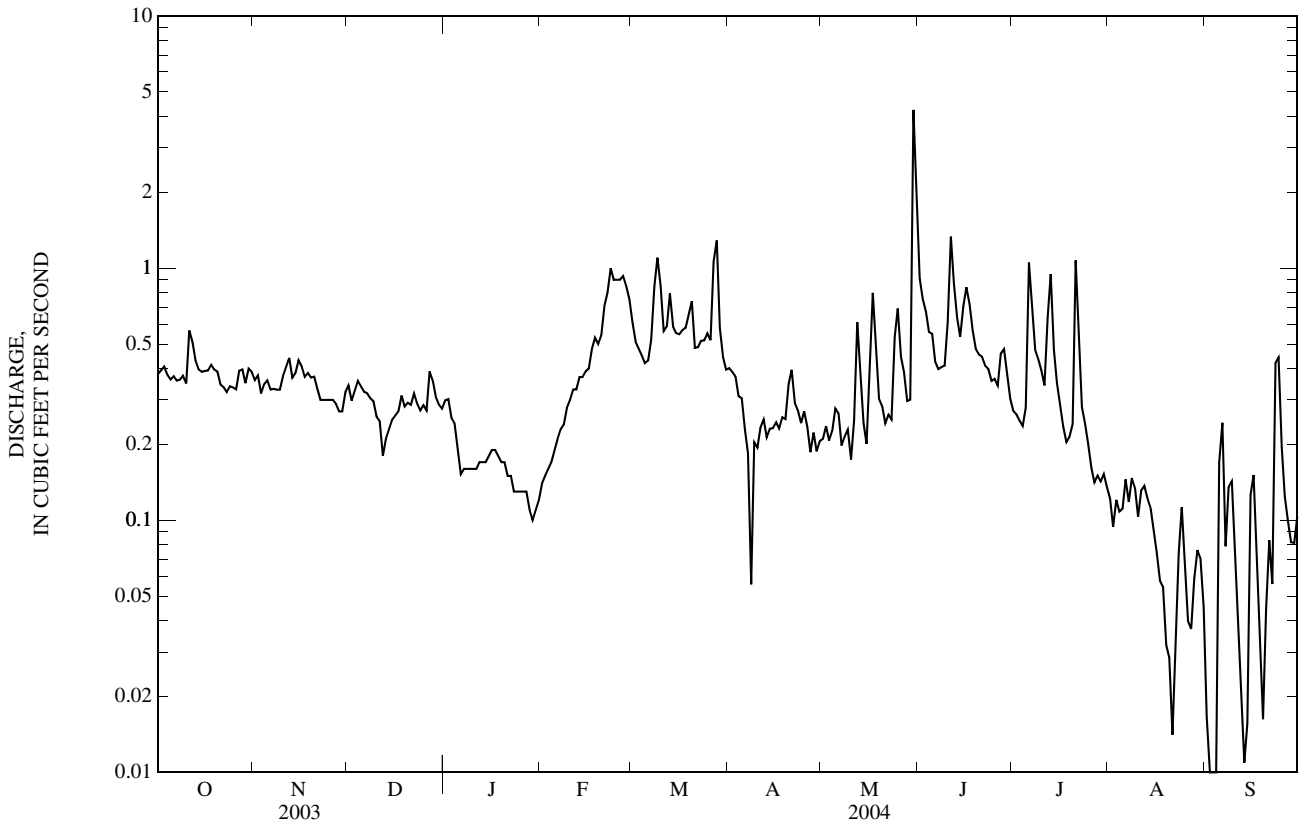
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2004, BY WATER YEAR (WY)

MEAN	3.04	0.43	0.38	0.28	0.36	0.59	28.1	3.64	0.94	0.43	0.30	0.33
MAX	13.7	0.68	0.63	0.50	0.60	0.75	139	16.2	2.53	0.58	0.51	0.63
(WY)	(2000)	(2000)	(2000)	(2001)	(2000)	(2001)	(2001)	(2001)	(2001)	(2000)	(2002)	(2000)
MIN	0.31	0.26	0.19	0.15	0.03	0.26	0.25	0.32	0.16	0.37	0.09	0.10
(WY)	(2002)	(2002)	(2002)	(2002)	(2003)	(2002)	(2004)	(2002)	(2002)	(2002)	(2004)	(2004)

06471800 FOOT CREEK NEAR ABERDEEN, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2000 - 2004	
ANNUAL TOTAL	153.40		127.42		3.21	
ANNUAL MEAN	0.42		0.35		0.28	
HIGHEST ANNUAL MEAN					13.4	2001
LOWEST ANNUAL MEAN					0.28	2002
HIGHEST DAILY MEAN	9.4	Jun 25	4.2	May 30	452	Apr 8, 2001
LOWEST DAILY MEAN	0.00	Feb 10	0.00	Sep 3	^a 0.00	Jun 30, 2002
ANNUAL SEVEN-DAY MINIMUM	0.00	Feb 10	0.03	Aug 29	0.00	Feb 10, 2003
MAXIMUM PEAK FLOW			^b 8.7	May 30	469	Apr 8, 2001
MAXIMUM PEAK STAGE			^c 5.26	Feb 23	8.43	Apr 8, 2001
ANNUAL RUNOFF (AC-FT)	304		253		2,330	
10 PERCENT EXCEEDS	0.68		0.61		0.90	
50 PERCENT EXCEEDS	0.33		0.30		0.38	
90 PERCENT EXCEEDS	0.07		0.10		0.14	

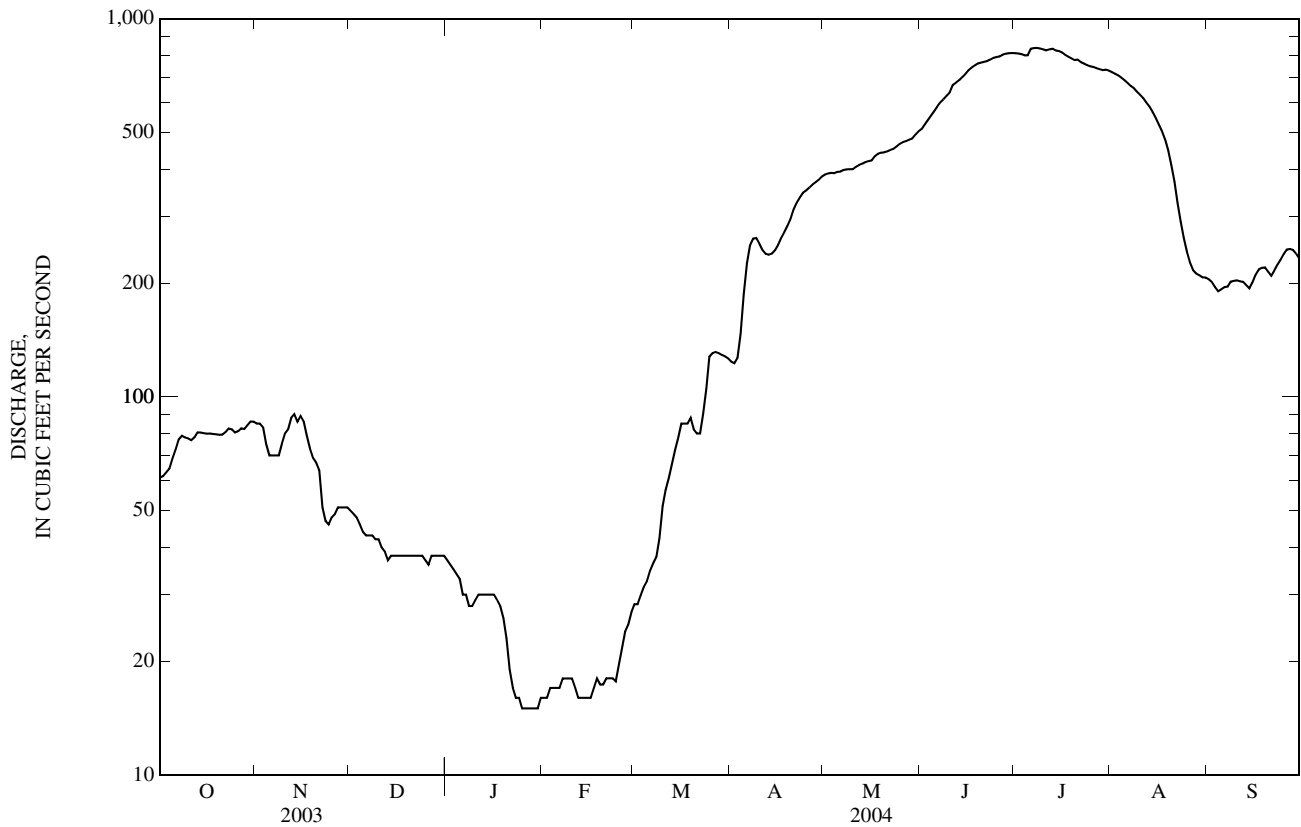
- a No flow at times in some years.
- b Gage height, 5.17 ft.
- c Backwater from ice.
- e Estimated.



06472000 JAMES RIVER NEAR STRATFORD, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1951-1972, 1977, 2000-2004	
ANNUAL TOTAL	53,153.14		97,493			
ANNUAL MEAN	146		266		^a 171	
HIGHEST ANNUAL MEAN					929	
LOWEST ANNUAL MEAN					0.00	
HIGHEST DAILY MEAN	647	Jul 5	837	Jul 8	4,940	Apr 20, 1952
LOWEST DAILY MEAN	0.62	Mar 13	15	Jan 25	^b 0.00	Nov 28, 1950
ANNUAL SEVEN-DAY MINIMUM	0.72	Mar 7	15	Jan 24	0.00	Nov 28, 1950
MAXIMUM PEAK FLOW			842	Jul 6	^c 8,400	Apr 6, 1997
MAXIMUM PEAK STAGE			13.74	Jul 6	^d 19.48	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	105,400		193,400		123,600	
10 PERCENT EXCEEDS	499		752		528	
50 PERCENT EXCEEDS	51		130		26	
90 PERCENT EXCEEDS	5.6		21		0.00	

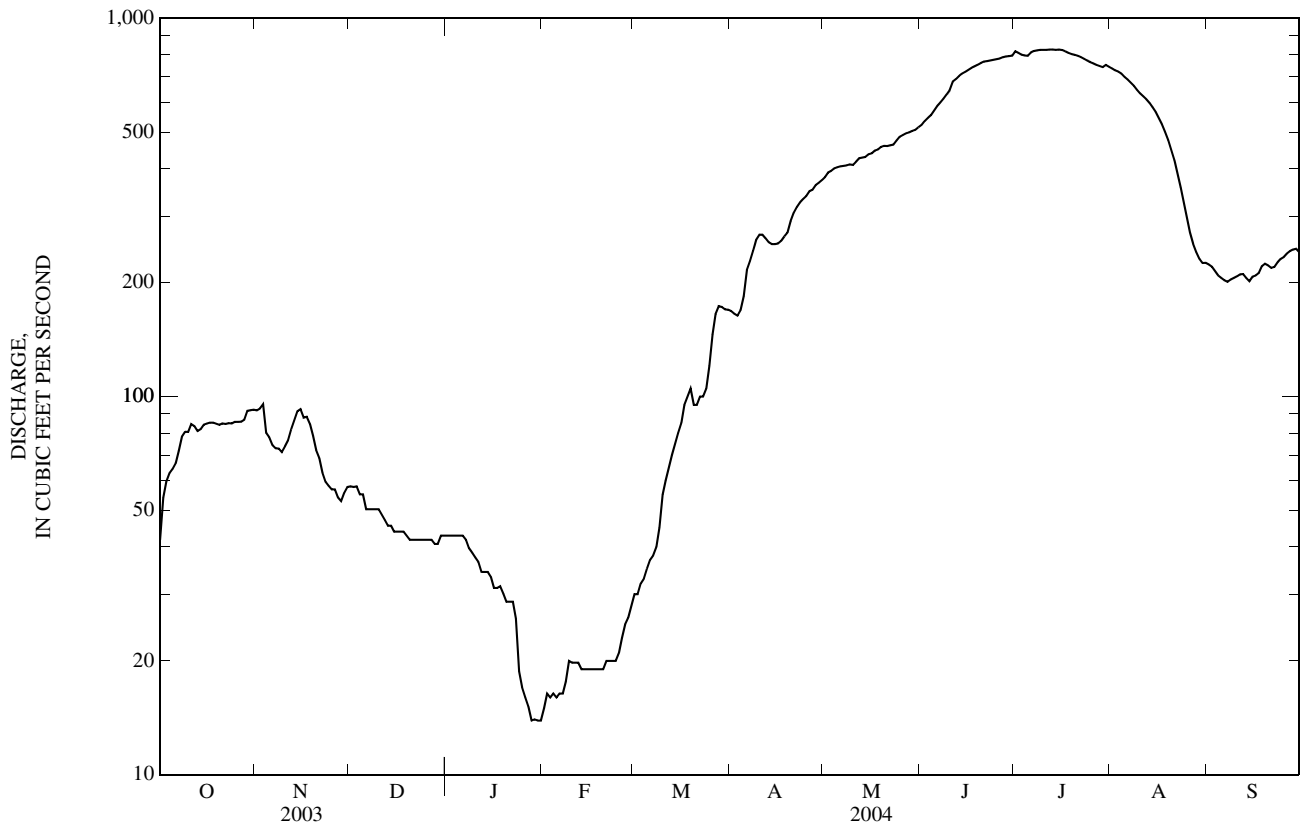
- a Median of annual mean discharges, 110 ft³/s.
- b No flow for many days in some years.
- c Also reflects 1997 partial record year.
- d From floodmark.
- e Estimated.



06473000 JAMES RIVER AT ASHTON, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1946 - 2004	
ANNUAL TOTAL	57,409.1		100,067			
ANNUAL MEAN	157		273		^a 265	
HIGHEST ANNUAL MEAN					1,530	1997
LOWEST ANNUAL MEAN					0.00	1959
HIGHEST DAILY MEAN	677	Jul 5	827	Jul 12	9,100	Apr 23, 1997
LOWEST DAILY MEAN	1.5	Mar 13	14	Jan 28	^b -8,400	Mar 31, 1997
ANNUAL SEVEN-DAY MINIMUM	1.6	Mar 8	15	Jan 26	-1,960	Mar 26, 1997
MAXIMUM PEAK FLOW			832	Jul 10	^c 9,150	Apr 23, 1997
MAXIMUM PEAK STAGE			9.13	Jul 10	^d 26.64	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	113,900		198,500		192,000	
10 PERCENT EXCEEDS	495		761		810	
50 PERCENT EXCEEDS	60		170		40	
90 PERCENT EXCEEDS	5.8		26		0.00	

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



06475000 JAMES RIVER NEAR REDFIELD, SD

LOCATION.--Lat 44°54'38", long 98°28'18", in 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	86	e60	e46	e17	e36	e170	384	512	823	734	210
2	44	87	e60	e45	e17	e37	e170	394	530	817	727	204
3	56	91	e60	e45	e18	e38	e170	397	539	808	725	201
4	61	e92	e60	e45	e18	e42	e170	403	544	802	715	198
5	63	e87	e60	e46	e18	e46	e190	407	556	802	704	199
6	65	e84	e55	e46	e19	e47	e220	410	567	817	694	192
7	67	e80	e55	e45	e19	e48	e235	409	579	822	683	189
8	71	e76	e54	e44	e19	e49	250	412	599	826	667	192
9	76	e73	e54	e43	e20	e53	269	413	618	827	648	193
10	77	e75	e53	e42	e20	e63	276	416	643	829	635	196
11	85	e80	e53	e41	e20	e69	277	424	687	831	625	201
12	81	e85	e52	e40	e20	e73	270	437	690	837	616	198
13	80	e90	e51	e39	e20	e78	264	433	699	834	604	197
14	80	e92	e50	e39	e20	e81	260	433	709	834	590	195
15	82	e95	e49	e38	e20	e85	259	440	722	838	575	199
16	82	e93	e48	e36	e20	e90	259	453	727	833	558	199
17	82	91	e47	e37	e20	e103	264	457	737	826	536	201
18	83	89	e47	e36	e20	e105	271	456	744	821	516	209
19	83	85	e47	e34	e20	e107	277	461	754	817	489	211
20	82	80	e46	e33	e20	e109	297	471	765	805	468	214
21	82	e70	e46	e33	e23	e106	313	468	768	795	440	213
22	82	e66	e46	e33	e25	e100	321	470	769	788	411	214
23	82	e62	e46	e30	e26	e97	331	470	768	781	372	218
24	80	e60	e46	e27	e26	e100	339	483	768	773	334	220
25	80	e60	e46	e23	e26	e115	347	491	773	765	298	223
26	81	e60	e45	e21	e27	e140	353	498	778	759	268	227
27	81	e55	e45	e19	e29	e160	358	504	785	752	249	236
28	81	e55	e45	e17	e32	e175	368	510	789	748	235	235
29	84	e57	e45	e17	e34	e175	372	515	e791	740	223	235
30	85	e60	e46	e17	---	e175	378	511	e793	750	215	237
31	86	---	e46	e17	---	e170	---	507	---	746	214	---
TOTAL	2,333	2,316	1,563	1,074	633	2,872	8,298	13,937	20,703	24,846	15,768	6,256
MEAN	75.3	77.2	50.4	34.6	21.8	92.6	277	450	690	801	509	209
MAX	86	95	60	46	34	175	378	515	793	838	734	237
MIN	29	55	45	17	17	36	170	384	512	740	214	189
AC-FT	4,630	4,590	3,100	2,130	1,260	5,700	16,460	27,640	41,060	49,280	31,280	12,410

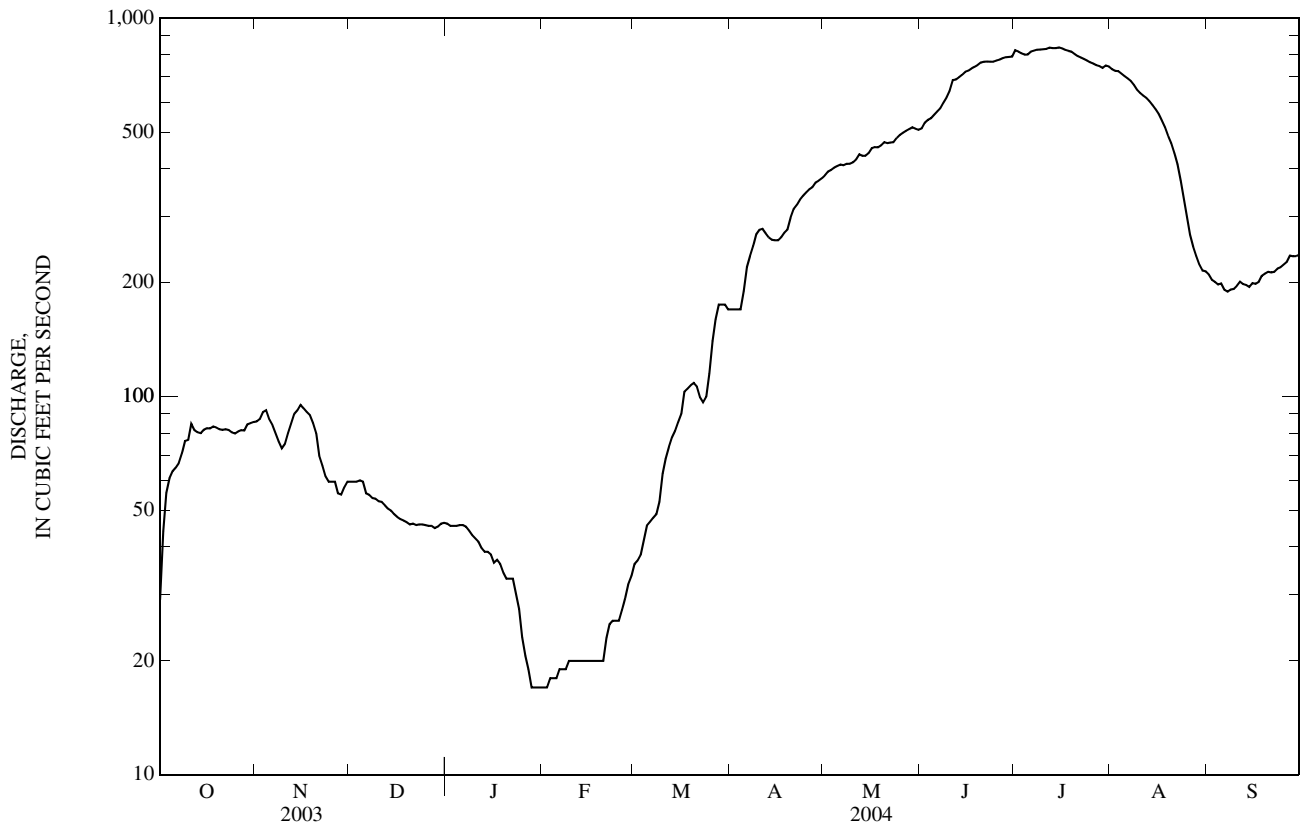
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1990, 1998 - 2004, BY WATER YEAR (WY)

MEAN	122	123	78.1	33.0	23.6	202	764	700	434	333	252	140
MAX	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	0.00	0.00	0.00	0.00	0.00	0.00	1.36	0.46	0.08	0.00	0.00	0.00
(WY)	(1955)	(1956)	(1956)	(1956)	(1956)	(1975)	(1959)	(1959)	(1977)	(1959)	(1959)	(1958)

06475000 JAMES RIVER NEAR REDFIELD, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1951-1990, 1998-2004	
ANNUAL TOTAL	60,598.4		100,599		a268	
ANNUAL MEAN	166		275		1,294	
HIGHEST ANNUAL MEAN					1999	
LOWEST ANNUAL MEAN					0.45	
HIGHEST DAILY MEAN	735	Jul 9	838	Jul 15	7,280	Apr 13, 1969
LOWEST DAILY MEAN	2.9	Mar 12	17	Jan 28	b0.00	Nov 8, 1950
ANNUAL SEVEN-DAY MINIMUM	3.2	Mar 6	17	Jan 28	0.00	Jan 25, 1951
MAXIMUM PEAK FLOW			847	Jul 15	c17,000	Apr 3, 1997
MAXIMUM PEAK STAGE			7.71	Jul 15	d31.10	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	120,200		199,500		194,000	
10 PERCENT EXCEEDS	514		761		817	
50 PERCENT EXCEEDS	63		170		43	
90 PERCENT EXCEEDS	9.7		30		0.00	

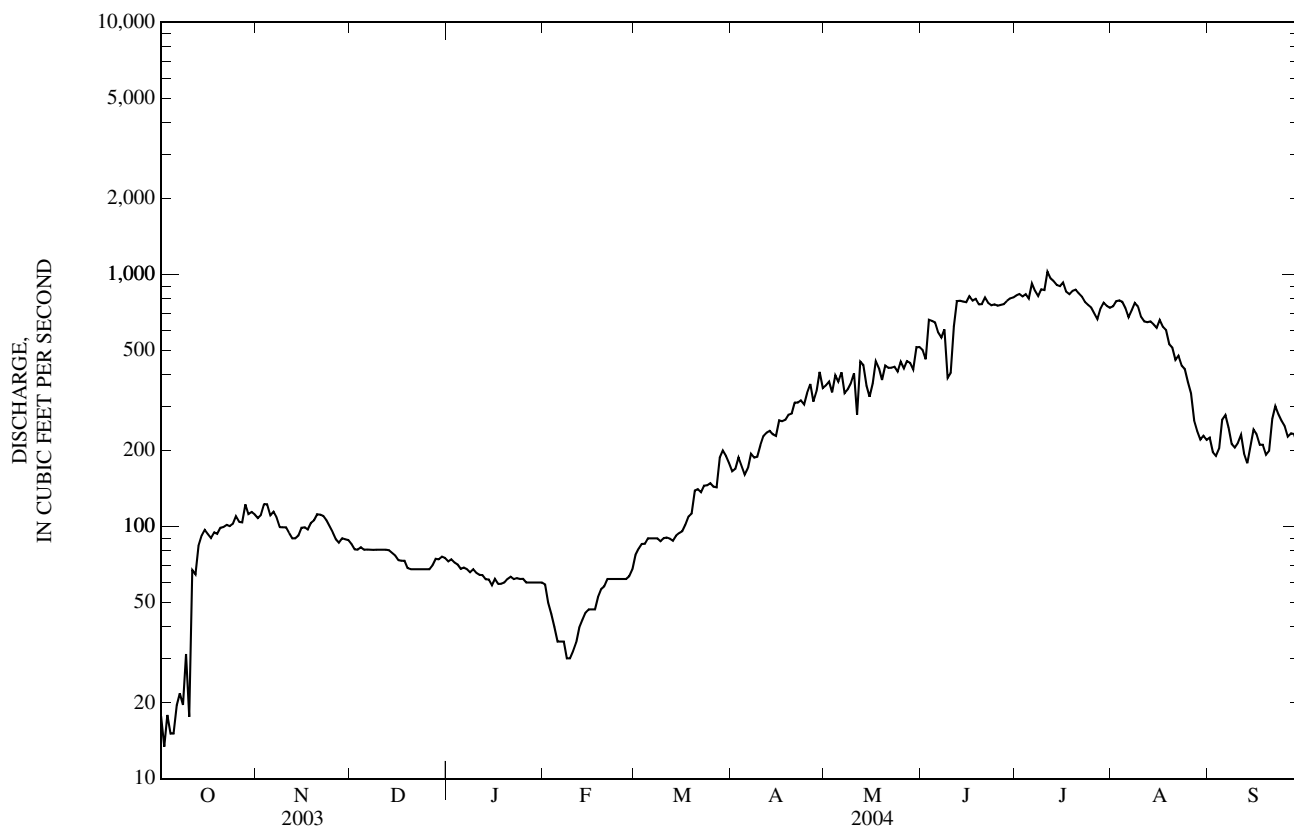
- a Median of annual mean discharges, 160 ft³/s.
- b No flow for many days in some years.
- c Gage height, 29.92 ft. Reflects 1997 partial-record year.
- d Backwater from ice, from floodmark.
- e Estimated.



06476000 JAMES RIVER AT HURON, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929-1932, 1944-2004	
ANNUAL TOTAL	64,027.7		105,791			
ANNUAL MEAN	175		289		^a 416	
HIGHEST ANNUAL MEAN					2,915	1997
LOWEST ANNUAL MEAN					0.51	1959
HIGHEST DAILY MEAN	795	Jul 3	1,030	Jul 11	22,800	Apr 6, 1997
LOWEST DAILY MEAN	9.7	Mar 26	13	Oct 2	^b 0.00	Oct 12, 1944
ANNUAL SEVEN-DAY MINIMUM	17	Sep 30	17	Oct 1	^c 0.00	Sep 29, 1945
MAXIMUM PEAK FLOW			1,070	Jul 11	23,400	Apr 6, 1997
MAXIMUM PEAK STAGE			10.10	Jul 11	^d 21.28	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	127,000		209,800		301,400	
10 PERCENT EXCEEDS	521		777		^e 1,120	
50 PERCENT EXCEEDS	81		172		^c 65	
90 PERCENT EXCEEDS	31		60		^e 0.00	

- a Median of annual mean discharges, 200 ft³/s.
- b No flow for long periods in most years.
- c For water years 1944-2004 only.
- d Backwater, from floodmark.
- e Estimated.



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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	96	e66	e45	e34	e103	183	350	668	794	720	188
2	25	90	e66	e46	e34	e104	170	335	641	804	734	178
3	22	96	e66	e45	e34	e104	163	331	576	812	769	164
4	21	98	e65	e43	e34	e103	163	333	667	815	769	153
5	20	99	e64	e41	e35	e100	165	336	733	815	749	156
6	18	95	e64	e40	e35	e99	161	369	729	831	716	203
7	17	100	e64	e39	e35	e96	155	393	679	877	690	238
8	16	e102	e63	e39	e35	e92	161	388	652	867	689	222
9	13	e104	e62	e39	e36	e93	170	362	724	845	698	197
10	14	106	e60	e39	e36	e100	171	381	629	824	693	170
11	21	111	e57	e39	e37	e98	177	390	558	839	675	162
12	29	100	e55	e40	e37	e82	195	415	691	916	660	164
13	41	97	e53	e40	e37	e91	212	480	829	907	653	162
14	51	86	e51	e40	e37	89	221	514	874	884	643	158
15	59	88	e49	e41	e37	84	224	462	871	866	627	172
16	68	94	e47	e42	e37	77	222	454	850	870	625	203
17	74	91	e45	e42	e38	81	236	543	842	871	638	210
18	79	90	e45	e41	e40	89	251	604	826	851	613	190
19	81	94	e45	e40	e42	89	253	572	818	824	574	170
20	81	94	e45	e39	e44	93	273	521	803	821	538	156
21	84	e92	e47	e39	e48	106	288	526	802	815	499	162
22	85	e88	e48	e39	e54	108	311	536	819	799	466	193
23	86	e82	e48	e39	e60	115	317	526	820	786	459	249
24	86	e78	e47	e39	e64	119	311	524	820	768	444	281
25	86	e76	e47	e38	e68	126	306	517	818	747	409	262
26	86	e74	e48	e37	e76	130	310	522	806	728	382	232
27	87	e72	e48	e36	e84	132	334	523	797	704	341	207
28	89	e70	e48	e35	e90	160	329	530	797	698	279	199
29	96	e68	e47	e34	e100	191	321	527	796	724	219	198
30	93	e67	e46	e34	---	196	358	589	794	737	195	189
31	99	---	e45	e34	---	192	---	666	---	726	189	---
TOTAL	1,756	2,698	1,651	1,224	1,378	3,442	7,111	14,519	22,729	25,165	17,355	5,788
MEAN	56.6	89.9	53.3	39.5	47.5	111	237	468	758	812	560	193
MAX	99	111	66	46	100	196	358	666	874	916	769	281
MIN	13	67	45	34	34	77	155	331	558	698	189	153
AC-FT	3,480	5,350	3,270	2,430	2,730	6,830	14,100	28,800	45,080	49,910	34,420	11,480

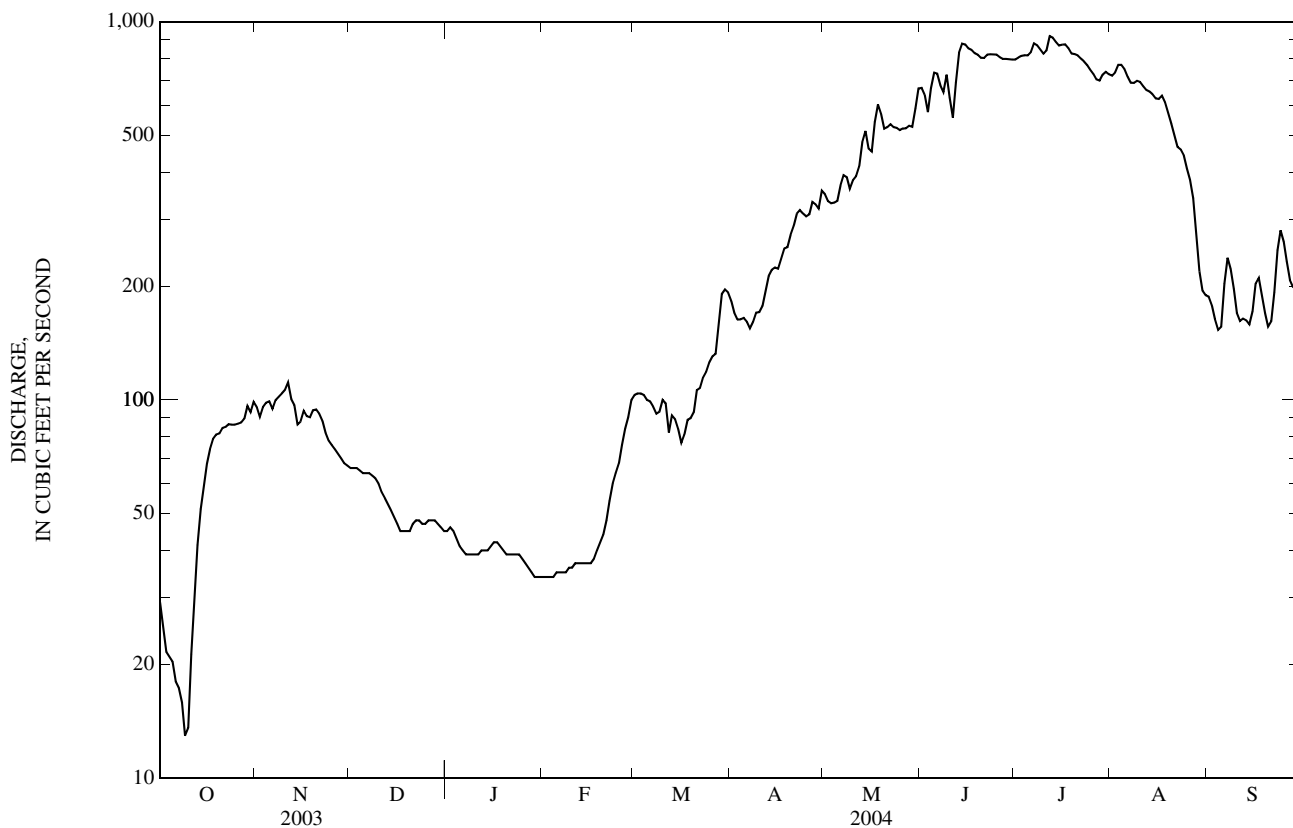
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2004, BY WATER YEAR (WY)

MEAN	183	175	121	61.2	63.8	567	1,627	1,242	829	518	397	243
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	0.00	0.00	0.00	0.00	0.00	9.75	2.39	5.61	0.39	0.00	0.00	0.00
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1990)	(1990)	(1959)	(1981)	(1981)	(1976)	(1976)

06477000 JAMES RIVER NEAR FORESTBURG, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1951 - 2004	
ANNUAL TOTAL	64,399		104,816			
ANNUAL MEAN	176		286		^a 503	
HIGHEST ANNUAL MEAN					3,054	1997
LOWEST ANNUAL MEAN					4.75	1959
HIGHEST DAILY MEAN	741	Jul 5	916	Jul 12	25,100	Apr 6, 1997
LOWEST DAILY MEAN	13	Oct 9	13	Oct 9	^b 0.00	Jul 10, 1959
ANNUAL SEVEN-DAY MINIMUM	17	Oct 4	17	Oct 4	0.00	Aug 9, 1959
MAXIMUM PEAK FLOW			931	Jul 12	25,600	Apr 6, 1997
MAXIMUM PEAK STAGE			7.34	Jul 12	20.61	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	127,700		207,900		364,500	
10 PERCENT EXCEEDS	540		797		1,320	
50 PERCENT EXCEEDS	69		157		85	
90 PERCENT EXCEEDS	37		39		2.6	

a Median of annual mean discharges, 240 ft³/s.
 b No flow at times in some years.
 c Estimated.



06477500 FIRESTEEL CREEK NEAR MOUNT VERNON, SD

LOCATION.--Lat 43°46'35", long 98°14'44" (revised), in SW¹/₄ SW¹/₄ sec.26, T.104 N., R.62 W., Davison County, Hydrologic Unit 10160011, on left bank 50 ft west of county road, 4.5 mi north of Mount Vernon, 5.2 mi downstream from West Firesteel Creek, and 12 mi northwest of Mitchell.

DRAINAGE AREA.--521 mi².

PERIOD OF RECORD.--September 1955 to current year.

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,297.22 ft above NGVD of 1929.

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

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.05	0.07	e0.14	1.3	e0.07	1.4	1.7	0.02	240	14	0.93	1.8
2	0.05	e0.06	e0.15	1.3	e0.07	1.4	1.2	0.04	182	13	1.1	1.5
3	0.05	e0.05	e0.15	1.2	e0.07	1.2	0.90	0.01	140	11	1.6	1.3
4	0.04	e0.04	e0.12	0.95	e0.08	0.86	0.74	0.01	95	9.3	1.7	1.2
5	0.04	e0.03	e0.14	0.73	e0.08	0.73	0.46	0.00	68	8.0	1.5	1.6
6	0.05	e0.05	e0.20	0.41	e0.09	0.67	0.36	0.00	49	7.9	1.3	1.9
7	0.05	e0.05	e0.19	0.27	e0.09	0.62	0.31	0.00	37	7.4	1.4	1.6
8	0.05	e0.05	e0.18	e0.25	e0.10	0.56	0.26	0.00	28	6.9	1.3	1.4
9	0.05	e0.05	e0.17	e0.22	e0.12	0.41	0.28	0.00	138	6.3	1.2	1.3
10	0.06	e0.06	0.11	e0.22	e0.15	0.36	0.20	0.00	309	6.0	1.7	1.3
11	0.26	e0.06	0.09	e0.27	e0.18	0.31	0.19	0.00	629	5.5	6.4	1.5
12	0.13	e0.03	0.09	0.31	e0.20	0.28	0.10	0.01	744	4.9	6.1	1.3
13	0.09	e0.04	0.12	1.6	e0.25	0.28	0.08	0.00	649	4.9	4.7	1.2
14	0.06	e0.03	0.11	1.4	e0.30	0.25	0.05	0.00	489	3.9	3.6	1.3
15	0.07	e0.04	0.14	1.1	e0.35	0.48	0.02	0.01	334	3.4	2.9	2.4
16	0.07	e0.16	0.16	1.2	e0.40	0.51	0.03	0.59	213	3.2	2.3	1.8
17	0.07	e0.16	0.25	1.1	e0.50	0.75	0.03	3.4	144	2.8	2.0	1.7
18	0.07	e0.20	0.27	0.96	e0.60	0.75	0.00	7.4	109	2.6	1.8	1.5
19	0.08	e0.08	0.25	0.51	e0.80	0.63	0.01	28	87	2.5	1.6	1.5
20	0.09	e0.04	0.27	0.48	e1.0	0.64	0.25	65	73	2.4	1.2	1.5
21	0.08	e0.04	0.32	0.70	e1.5	0.51	0.54	59	63	2.3	1.1	1.8
22	0.08	e0.03	0.46	0.48	e1.5	0.55	0.75	47	54	2.4	1.0	1.7
23	0.08	e0.02	0.49	0.57	1.3	0.49	0.53	36	46	1.7	1.8	3.4
24	0.08	e0.03	0.57	0.91	1.0	0.36	0.39	31	38	1.6	1.4	13
25	0.09	e0.08	0.59	0.68	1.1	0.31	0.35	31	33	1.6	1.3	18
26	0.08	e0.08	0.61	0.64	1.2	0.19	0.25	25	28	1.5	1.2	9.1
27	0.08	e0.08	0.89	0.26	1.2	0.65	0.13	21	24	1.2	1.2	6.4
28	0.08	e0.05	1.5	e0.15	1.0	1.4	0.11	17	21	1.3	1.2	6.1
29	0.08	e0.06	e1.5	e0.09	1.2	1.3	0.06	13	18	1.2	1.6	17
30	0.07	e0.08	1.5	e0.06	---	0.86	0.06	245	16	0.95	1.8	24
31	0.06	---	1.4	e0.06	---	1.7	---	121	---	0.93	2.1	---
TOTAL	2.34	1.90	13.13	20.38	16.50	21.41	10.34	750.49	5,098	142.58	62.03	131.1
MEAN	0.08	0.06	0.42	0.66	0.57	0.69	0.34	24.2	170	4.60	2.00	4.37
MAX	0.26	0.20	1.5	1.6	1.5	1.7	1.7	245	744	14	6.4	24
MIN	0.04	0.02	0.09	0.06	0.07	0.19	0.00	0.00	16	0.93	0.93	1.2
AC-FT	4.6	3.8	26	40	33	42	21	1,490	10,110	283	123	260

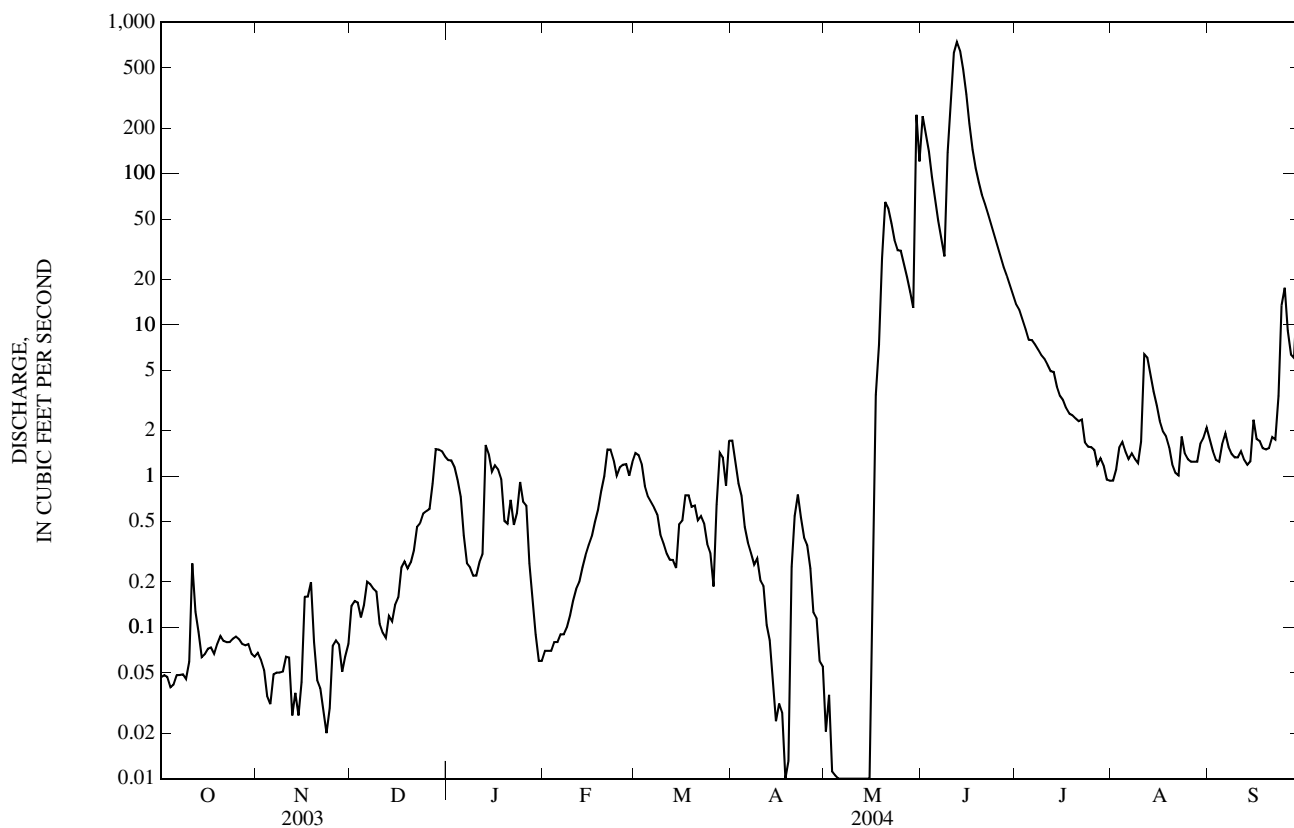
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2004, BY WATER YEAR (WY)

MEAN	1.74	3.54	1.07	1.07	8.74	84.1	95.2	84.2	72.5	24.8	7.26	1.11
MAX	39.2	119	22.7	23.3	175	759	829	1,135	1,097	623	124	13.8
(WY)	(1983)	(1999)	(1999)	(1973)	(1996)	(1997)	(2001)	(1995)	(1962)	(1993)	(1992)	(1992)
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00
(WY)	(1959)	(1960)	(1956)	(1956)	(1956)	(1965)	(1980)	(1980)	(1968)	(1959)	(1958)	(1958)

06477500 FIRESTEEL CREEK NEAR MOUNT VERNON, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1956 - 2004	
ANNUAL TOTAL	142.13		6,270.20			
ANNUAL MEAN	0.39		17.1		^a 32.2	
HIGHEST ANNUAL MEAN					203	1962
LOWEST ANNUAL MEAN					0.03	1980
HIGHEST DAILY MEAN	9.6	Mar 16	744	Jun 12	5,820	Apr 4, 1969
LOWEST DAILY MEAN	0.00	Sep 7	0.00	Apr 18	^b 0.00	Oct 1, 1955
ANNUAL SEVEN-DAY MINIMUM	0.01	Sep 3	0.00	May 5	0.00	Oct 8, 1955
MAXIMUM PEAK FLOW			822	Jun 12	^c 6,610	Apr 4, 1969
MAXIMUM PEAK STAGE			8.45	Jun 12	^d 17.12	Apr 3, 1969
ANNUAL RUNOFF (AC-FT)	282		12,440		23,300	
10 PERCENT EXCEEDS	0.83		24		29	
50 PERCENT EXCEEDS	0.12		0.68		0.26	
90 PERCENT EXCEEDS	0.04		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 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 current year.

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, 1,840 ft³/s, June 14, gage height, 16.02 ft.

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

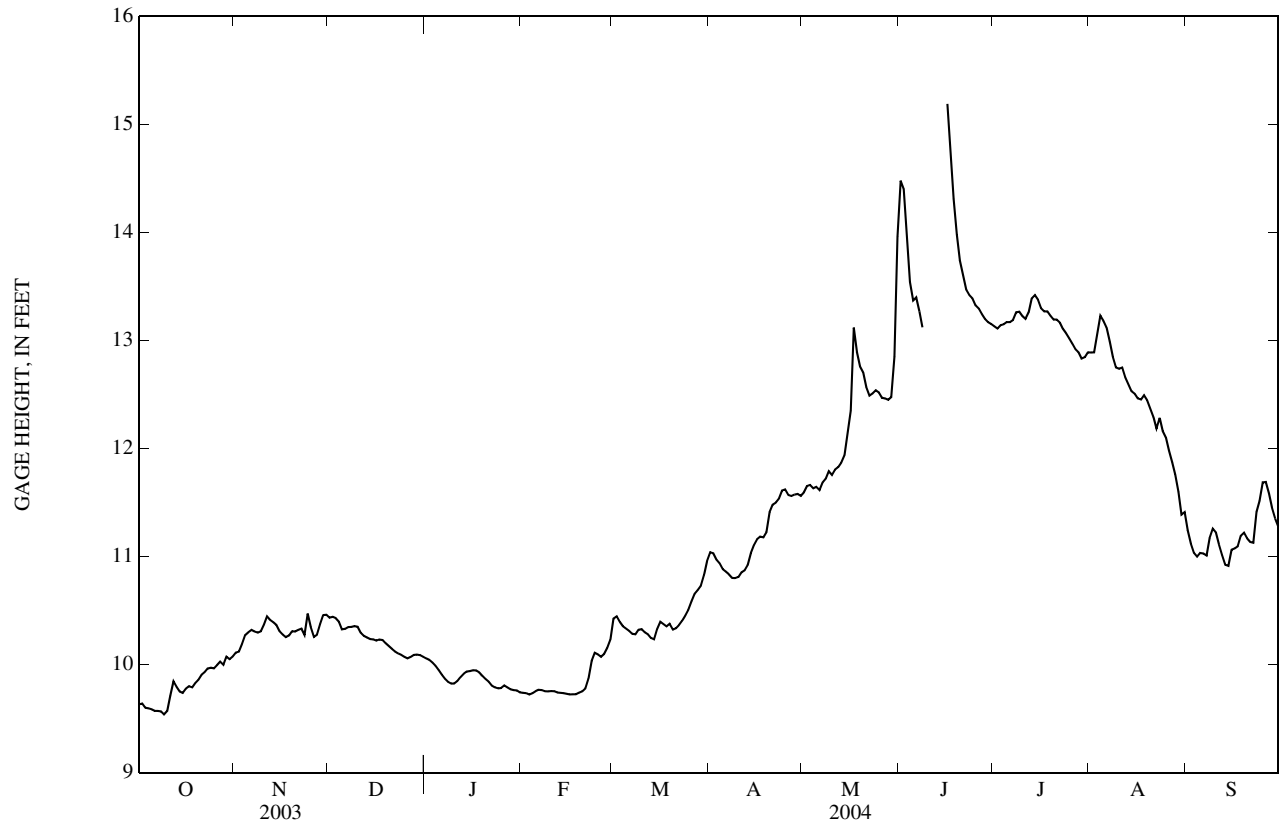
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	1,210	819	759	---
2	---	---	---	---	---	---	---	---	1,190	814	759	---
3	---	---	---	---	---	---	---	---	1,060	820	803	---
4	---	---	---	---	---	---	---	---	927	823	844	---
5	---	---	---	---	---	---	---	---	879	829	832	---
6	---	---	---	---	---	---	---	---	888	828	817	---
7	---	---	---	---	---	---	---	---	853	835	785	---
8	---	---	---	---	---	---	---	---	817	852	745	---
9	---	---	---	---	---	---	---	---	e860	853	707	---
10	---	---	---	---	---	---	---	---	e950	843	704	---
11	---	---	---	---	---	---	---	---	e1,100	836	e710	---
12	---	---	---	---	---	---	---	---	e1,300	850	e675	---
13	---	---	---	---	---	---	---	---	e1,550	885	654	---
14	---	---	---	---	---	---	---	---	e1,750	894	633	---
15	---	---	---	---	---	---	---	513	e1,660	882	625	---
16	---	---	---	---	---	---	---	579	1,480	861	612	---
17	---	---	---	---	---	---	---	816	1,310	854	608	---
18	---	---	---	---	---	---	---	754	1,160	854	621	---
19	---	---	---	---	---	---	---	712	1,050	844	607	---
20	---	---	---	---	---	---	---	692	982	835	583	---
21	---	---	---	---	---	---	---	645	943	835	559	---
22	---	---	---	---	---	---	---	620	908	827	528	---
23	---	---	---	---	---	---	---	627	893	813	556	---
24	---	---	---	---	---	---	---	637	884	803	522	---
25	---	---	---	---	---	---	---	630	869	791	505	---
26	---	---	---	---	---	---	---	615	861	779	---	---
27	---	---	---	---	---	---	---	612	847	767	---	---
28	---	---	---	---	---	---	---	607	836	758	---	---
29	---	---	---	---	---	---	---	615	829	738	---	---
30	---	---	---	---	---	---	---	739	823	743	---	---
31	---	---	---	---	---	---	---	1,050	---	760	---	---
TOTAL	---	---	---	---	---	---	---	---	31,669	25,525	---	---
MEAN	---	---	---	---	---	---	---	---	1,056	823	---	---
MAX	---	---	---	---	---	---	---	---	1,750	894	---	---
MIN	---	---	---	---	---	---	---	---	817	738	---	---
AC-FT	---	---	---	---	---	---	---	---	62,820	50,630	---	---

e Estimated

06478000 JAMES RIVER NEAR MITCHELL, SD—Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.63	10.11	10.43	10.06	9.74	10.43	11.04	11.59	14.48	13.13	12.89	11.24
2	9.64	10.12	10.44	10.04	9.74	10.45	11.03	11.65	14.40	13.11	12.89	11.12
3	9.60	10.19	10.43	10.02	9.72	10.40	10.97	11.66	14.01	13.14	13.06	11.03
4	9.59	10.27	10.40	9.99	9.73	10.35	10.94	11.63	13.54	13.15	13.23	11.00
5	9.59	10.30	10.33	9.95	9.75	10.33	10.88	11.65	13.37	13.17	13.18	11.03
6	9.57	10.32	10.33	9.91	9.77	10.31	10.86	11.61	13.40	13.17	13.12	11.03
7	9.57	10.31	10.35	9.87	9.76	10.29	10.84	11.68	13.27	13.19	12.99	11.01
8	9.57	10.30	10.35	9.84	9.75	10.28	10.80	11.72	13.12	13.26	12.85	11.17
9	9.54	10.31	10.36	9.83	9.75	10.32	10.80	11.79	---	13.27	12.75	11.26
10	9.57	10.37	10.35	9.82	9.76	10.33	10.81	11.76	---	13.23	12.74	11.22
11	9.71	10.45	10.30	9.85	9.75	10.30	10.85	11.80	---	13.20	12.75	11.11
12	9.85	10.41	10.27	9.88	9.74	10.28	10.87	11.83	---	13.26	12.66	11.01
13	9.79	10.39	10.25	9.91	9.74	10.25	10.92	11.87	---	13.39	12.59	10.92
14	9.75	10.37	10.24	9.94	9.74	10.23	11.03	11.94	---	13.42	12.53	10.91
15	9.74	10.31	10.23	9.94	9.73	10.33	11.11	12.13	---	13.38	12.51	11.06
16	9.78	10.28	10.22	9.95	9.72	10.40	11.16	12.35	15.19	13.30	12.46	11.07
17	9.80	10.26	10.23	9.95	9.73	10.38	11.19	13.12	14.75	13.27	12.45	11.10
18	9.79	10.27	10.23	9.93	9.73	10.35	11.18	12.89	14.31	13.27	12.49	11.19
19	9.83	10.31	10.20	9.90	9.74	10.38	11.23	12.76	13.98	13.23	12.45	11.22
20	9.86	10.31	10.17	9.87	9.75	10.32	11.41	12.70	13.74	13.19	12.37	11.17
21	9.91	10.32	10.15	9.84	9.78	10.34	11.48	12.57	13.60	13.19	12.29	11.14
22	9.93	10.33	10.12	9.81	9.87	10.37	11.50	12.49	13.47	13.17	12.18	11.13
23	9.96	10.27	10.10	9.79	10.04	10.41	11.53	12.51	13.42	13.11	12.28	11.41
24	9.97	10.47	10.09	9.78	10.11	10.45	11.61	12.54	13.39	13.07	12.16	11.52
25	9.97	10.35	10.07	9.78	10.09	10.51	11.62	12.52	13.33	13.02	12.10	11.69
26	10.0	10.26	10.06	9.81	10.07	10.59	11.57	12.47	13.30	12.97	11.98	11.69
27	10.03	10.28	10.07	9.79	10.10	10.65	11.56	12.46	13.25	12.92	11.87	11.58
28	10.0	10.38	10.09	9.77	10.15	10.69	11.57	12.45	13.20	12.89	11.76	11.45
29	10.07	10.46	10.09	9.76	10.23	10.73	11.58	12.48	13.17	12.83	11.60	11.35
30	10.05	10.46	10.09	9.76	---	10.83	11.56	12.85	13.15	12.85	11.39	11.28
31	10.07	---	10.07	9.74	---	10.96	---	13.96	---	12.89	11.41	---
MEAN	9.80	10.32	10.23	9.87	9.84	10.43	11.18	12.24	---	13.15	12.45	11.20
MAX	10.07	10.47	10.44	10.06	10.23	10.96	11.62	13.96	---	13.42	13.23	11.69
MIN	9.54	10.11	10.06	9.74	9.72	10.23	10.80	11.59	---	12.83	11.39	10.91



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06478500 JAMES RIVER NEAR SCOTLAND, SD

LOCATION.--Lat 43°11'09", long 97°38'07", in SW¹/₄ SW¹/₄ sec.30, T.97 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 0.3 mi upstream from Dawson Creek, and 5.2 mi northeast of Scotland.

DRAINAGE AREA.--20,653 mi², of which 4,148 mi² is probably noncontributing.

PERIOD OF RECORD.--September 1928 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 956: 1937-38. WSP 1279: 1932, 1948. WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area. WDR SD-88-1: Datum.

GAGE.--Water-stage recorder, crest-stage gage, and rock and earth control. Datum of gage is 1,168.02 ft above NGVD of 1929. Prior to Nov. 28, 1972, at site 0.25 mi downstream 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 caused by Dawson Creek; reverse flow occurred for part of May 15, 1961, from information by local residents. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	94	134	107	e57	244	200	309	1,100	878	746	302
2	52	89	132	112	e55	250	209	307	1,430	875	768	269
3	51	94	131	82	e55	237	227	306	1,540	873	776	227
4	50	101	130	e84	e55	215	233	310	1,480	883	806	197
5	51	109	124	e85	e55	207	222	318	1,310	900	864	183
6	51	109	126	e80	e55	188	214	316	1,130	916	879	185
7	49	109	132	e72	e56	187	222	308	1,040	932	855	196
8	46	109	130	e67	e58	175	229	302	1,000	926	839	188
9	41	109	95	e68	e60	168	222	309	957	913	826	173
10	35	121	e70	e70	e65	158	218	322	927	923	782	181
11	46	121	e130	75	e70	167	217	322	1,000	912	752	206
12	57	124	e140	80	e75	165	213	309	1,150	898	742	213
13	67	137	e130	82	e80	153	213	347	1,510	892	730	194
14	69	137	124	85	e77	155	211	375	1,850	913	698	185
15	73	135	121	87	e78	162	208	387	2,040	961	659	210
16	70	135	116	90	e80	162	221	416	2,150	965	628	200
17	67	129	112	90	81	157	239	498	2,180	937	628	190
18	66	125	115	81	83	163	250	656	2,080	909	625	189
19	65	126	118	79	86	167	262	789	1,860	893	621	183
20	68	128	120	88	90	169	265	765	1,610	893	613	185
21	68	131	120	87	93	175	275	745	1,400	881	593	224
22	71	132	115	80	e99	165	291	720	1,230	879	558	253
23	72	131	115	81	e103	155	305	723	1,120	868	568	307
24	73	e132	112	80	e108	151	310	726	1,050	847	612	298
25	75	135	112	e73	e110	157	319	789	1,010	830	610	305
26	79	133	113	e68	e115	162	330	746	978	810	551	327
27	83	131	114	e66	121	162	331	693	956	784	508	349
28	86	121	114	e63	148	177	319	660	938	764	467	355
29	91	131	105	e62	199	191	312	629	913	768	419	325
30	88	133	94	e60	---	199	315	724	892	758	374	285
31	94	---	101	e58	---	202	---	882	---	741	333	---
TOTAL	2,010	3,651	3,645	2,442	2,467	5,545	7,602	16,008	39,831	27,122	20,430	7,084
MEAN	64.8	122	118	78.8	85.1	179	253	516	1,328	875	659	236
MAX	94	137	140	112	199	250	331	882	2,180	965	879	355
MIN	35	89	70	58	55	151	200	302	892	741	333	173
AC-FT	3,990	7,240	7,230	4,840	4,890	11,000	15,080	31,750	79,000	53,800	40,520	14,050

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

MEAN	176	172	128	70.8	118	787	1,920	1,398	1,151	708	403	243
MAX	1,613	2,050	1,885	716	800	4,118	20,950	13,180	7,585	8,582	4,154	2,048
(WY)	(2000)	(1999)	(1999)	(1999)	(1994)	(1994)	(1997)	(1995)	(1984)	(1993)	(1993)	(1999)
MIN	0.00	0.00	2.72	1.52	2.14	16.8	18.5	8.52	5.14	0.79	0.00	0.27
(WY)	(1940)	(1940)	(1940)	(1940)	(1940)	(1940)	(1934)	(1934)	(1981)	(1936)	(1934)	(1941)

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SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	78,910		137,837			
ANNUAL MEAN	216		377		^a 607	
HIGHEST ANNUAL MEAN					3,996	1997
LOWEST ANNUAL MEAN					13.8	1934
HIGHEST DAILY MEAN	1,430	Jul 9	2,180	Jun 17	27,800	Apr 9, 1997
LOWEST DAILY MEAN	35	Oct 10	35	Oct 10	^b 0.00	Jul 28, 1934
ANNUAL SEVEN-DAY MINIMUM	46	Oct 5	46	Oct 5	0.00	Jul 28, 1934
MAXIMUM PEAK FLOW			2,210	Jun 16	29,400	Jun 23, 1984
MAXIMUM PEAK STAGE			9.53	Jun 16	20.45	Jun 23, 1984
ANNUAL RUNOFF (AC-FT)	156,500		273,400		439,800	
10 PERCENT EXCEEDS	541		913		1,550	
50 PERCENT EXCEEDS	130		190		100	
90 PERCENT EXCEEDS	70		69		9.0	

- a Median of annual mean discharges, 290 ft³/s.
- b No flow for many days in some years.
- e Estimated.

