

05069000 SAND HILL RIVER AT CLIMAX, MN

LOCATION.--Lat 47°36'43", long 96°48'52", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 30, T.148 N., R.48 W., Polk County, Hydrologic Unit 09020301, on left bank 25 ft upstream from bridge on U.S. Highway 75 in Climax and 3.7 mi upstream from mouth.

DRAINAGE AREA.--420 mi².

PERIOD OF RECORD.--March 1943 to September 1984, June 1985 to current year (winter records incomplete prior to 1947). Monthly discharge only for some periods, published in WSP 1308 and 1728. October 1984 to May 1985, operated as a high-flow partial-record station.

REVISED RECORDS.--WSP 1388: 1943(M), 1944, 1947(M). WSP 1728: 1951(M), 1960 (average discharge).

GAGE.--Water-stage recorder. Datum of gage is 820.10 ft above sea level (NGVD or 1929, levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1966, nonrecording gage at site 3.2 mi upstream at datum 12.78 ft higher. Oct. 1, 1966 to Sept 5, 1989, nonrecording gage at present site and datum.

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

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	67	40	e24	e16	e14	128	66	60	e230	33	17
2	69	61	e39	e24	e16	e14	91	57	56	e230	32	16
3	69	66	e38	e24	e16	e14	67	52	60	e210	32	18
4	69	59	e38	e24	e16	e14	77	65	59	e185	31	18
5	69	61	e38	e24	e16	e14	77	105	54	e165	32	17
6	67	60	e38	e24	e16	e15	77	112	51	e140	30	17
7	71	61	e37	e24	e16	e15	73	107	52	e125	29	16
8	68	63	e36	e23	e16	e16	78	94	65	112	27	16
9	68	60	e35	e21	e16	e17	85	99	68	104	24	15
10	68	60	e35	e20	e16	e18	91	244	73	105	24	16
11	66	58	e34	e19	e16	e20	78	220	147	102	24	18
12	65	58	e34	e19	e16	e23	61	193	139	98	24	19
13	62	52	e33	e19	e16	e26	57	159	130	91	21	21
14	62	47	e33	e19	e16	e35	62	135	115	93	19	24
15	62	52	e33	e19	e16	e45	57	112	104	101	17	21
16	62	51	e33	e19	e16	e56	52	97	93	88	16	20
17	61	e50	e33	e18	e16	e72	58	86	86	78	16	24
18	62	e50	e35	e18	e16	e90	64	83	77	71	16	26
19	63	e50	e35	e18	e16	e125	72	115	70	66	16	32
20	62	e51	e35	e18	e15	e160	95	166	60	63	15	25
21	61	e51	e34	e17	e15	e210	112	160	53	59	16	22
22	65	e50	e33	e17	e14	e275	118	156	69	59	14	21
23	64	e49	e31	e17	e14	e350	109	141	542	58	16	24
24	61	e49	e30	e17	e14	394	96	120	258	62	20	22
25	59	44	e29	e17	e14	288	86	108	261	54	24	21
26	58	31	e28	e17	e14	224	80	95	380	50	20	20
27	59	47	e28	e16	e14	199	74	83	375	46	20	19
28	60	55	e28	e16	e14	142	73	72	315	42	18	20
29	63	51	e28	e16	---	135	65	64	258	37	18	23
30	68	48	e28	e16	---	127	65	60	e240	36	18	27
31	59	---	e26	e16	---	122	---	63	---	35	17	---
TOTAL	1,993	1,612	1,035	600	432	3,269	2,378	3,489	4,370	2,995	679	615
MEAN	64.3	53.7	33.4	19.4	15.4	105	79.3	113	146	96.6	21.9	20.5
MAX	71	67	40	24	16	394	128	244	542	230	33	32
MIN	58	31	26	16	14	14	52	52	51	35	14	15
AC-FT	3,950	3,200	2,050	1,190	857	6,480	4,720	6,920	8,670	5,940	1,350	1,220
CFSM	0.15	0.13	0.08	0.05	0.04	0.25	0.19	0.27	0.35	0.23	0.05	0.05
IN.	0.18	0.14	0.09	0.05	0.04	0.29	0.21	0.31	0.39	0.27	0.06	0.05

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

MEAN	39.0	35.6	20.4	15.0	17.6	94.6	378	133	113	93.5	41.2	36.3
MAX	223	284	58.0	36.8	183	610	1,568	1,156	689	703	426	374
(WY)	(1972)	(2001)	(1999)	(2001)	(1998)	(1999)	(1997)	(1950)	(2002)	(2002)	(1993)	(1999)
MIN	9.43	8.64	5.11	2.02	3.55	5.81	25.3	23.7	11.5	8.95	6.30	6.49
(WY)	(1977)	(1956)	(1964)	(1962)	(1962)	(1948)	(1981)	(1958)	(1980)	(1980)	(1961)	(1955)

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SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1943 - 2003	
ANNUAL TOTAL	66,924		23,467			
ANNUAL MEAN	183		64.3		a85.1	
HIGHEST ANNUAL MEAN					249	1999
LOWEST ANNUAL MEAN					18.4	1977
HIGHEST DAILY MEAN	3,360	Jul 11	542	Jun 23	4,360	Apr 14, 1965
LOWEST DAILY MEAN	23	Jan 1	14	Feb 22	1.0	Jan 17, 1962
ANNUAL SEVEN-DAY MINIMUM	23	Jan 20	14	Feb 22	1.1	Jan 12, 1962
MAXIMUM PEAK FLOW			670	Jun 23	b4,560	Apr 14, 1965
MAXIMUM PEAK STAGE			8.24	Jun 23	c39.40	Apr 20, 1997
ANNUAL RUNOFF (AC-FT)	132,700		46,550		61,620	
ANNUAL RUNOFF (CFSM)	0.44		0.15		0.20	
ANNUAL RUNOFF (INCHES)	5.93		2.08		2.75	
10 PERCENT EXCEEDS	425		129		164	
50 PERCENT EXCEEDS	67		50		25	
90 PERCENT EXCEEDS	27		16		9.0	

- a Median of annual mean discharges is 65 ft³/s.
- b Gage-height, 17.81 ft, site and datum then in use.
- c Backwater from Red River of the North.
- e Estimated.

