05079000 RED LAKE RIVER AT CROOKSTON, MN

LOCATION.--Lat 47°46'32", long 96°36'33", in SW¼SW¼ sec. 30, T.150 N., R.46 W., Polk County, Hydrologic Unit 09020303, on right bank 100 ft upstream from Sargent Street bridge in Crookston, 0.3 mi downstream from Interstate Power Co.'s dam, 0.6 mi downstream from bridge on U.S. Highway 75, and 53 mi upstream from mouth.

DRAINAGE AREA.--5,270 mi^2.

PERIOD OF RECORD.--May 1901 to current year. Monthly discharge only for some periods, published in WSP 1308. Figures of daily discharge for Apr. 3-30, 1904, published in WSP 130, have been found unreliable and should not be used.

REVISED RECORDS.--WSP 1115: 1906, 1915-16, 1919-20, 1922, 1925, 1927, 1929. WSP 1308: 1916(M), 1919(M), 1928(M), 1930(M). (See also PERIOD OF RECORD).

GAGE.--Water-stage recorder. Datum of gage is 832.72 ft above sea level (NGVD of 1929). May 18, 1901 to June 30, 1909, nonrecording gage at bridge 300 ft upstream at same datum. July 1, 1909 to Sept. 25, 1911, nonrecording gage, Sept. 26, 1911 to Sept. 30, 1919, water-stage recorder, Oct. 1, 1919 to Sept. 30, 1930, nonrecording gage, at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diurnal fluctuation prior to 1975 caused by power plant 1,000 ft upstream. Runoff from 1,950 mi^2 in the headwaters of Red Lake River is completely controlled by dam at outlet of Lower Red Lake. Flow partially affected by occasional regulation at Thief and Mud Lakes in Thief River basin (see station 05076000).

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	122	169	e160	e165	e105	e125	e5,500	1,020	10,200	1,050	340	e352
2	145	184	e165	e165	e110	e125	e5,500	874	7,550	960	334	e340
3	128	171	e165	e160	e110	e125	4,060	824	5,870	1,020	319	e384
4	142	137	e160	e155	e110	e120	3,450	817	4,830	977	299	e381
5	134	e135	e165	e155	e110	e120	3,070	718	3,910	1,020	283	e370
6	113	131	e170	e155	e110	e125	2,440	513	3,520	1,090	331	e404
7	136	127	e170	e160	e110	e130	1,930	524	3,330	1,130	326	e542
8	108	114	e170	e165	e110	e130	1,650	341	3,130	1,290	312	798
9	138	e135	e165	e170	e110	e135	1,670	403	2,960	1,280	323	950
10	129	e145	e155	e170	e110	e140	1,620	385	2,780	1,000	352	941
11	178	182	e150	e170	e110	e140	1,370	370	2,610	993	376	850
12	153	188	e145	e170	e110	e140	1,220	3,520	2,500	954	434	827
13	166	146	e145	e170	e110	e145	1,080	9,840	2,340	1,020	446	790
14	181	154	e145	e170	e110	e150	1,030	9,030	2,210	1,040	412	729
15	162	181	e145	e165	e110	e160	1,220	6,550	2,090	1,000	402	700
16	137	177	e145	e155	e110	e160	1,260	5,300	2,020	916	380	595
17	116	173	e145	e145	e110	e160	1,530	4,750	1,990	852	346	563
18	138	193	e150	e140	e115	e160	1,510	4,060	1,830	664	343	830
19	133	207	e150	e135	e115	e165	1,430	3,570	1,770	695	312	945
20	163	209	e155	e140	e115	e185	1,420	3,980	1,730	663	289	969
21	166	170	e160	e140	e110	e205	1,390	4,190	1,680	582	278	1,130
22	166	152	e165	e140	e110	e235	1,330	3,600	1,610	409	270	1,450
23	144	e150	e165	e140	e110	e300	1,260	3,240	1,520	389	254	e1,740
24	130	e145	e165	e140	e115	e390	1,240	3,000	1,510	400	273	e1,970
25	155	e140	e170	e140	e115	e670	1,310	2,900	1,480	430	269	e2,140
26	159	e130	e170	e140	e120	e1,800	1,240	2,900	1,340	399	782	e2,190
27	155	e130	e170	e135	e120	e4,800	1,230	2,900	1,050	389	1,050	e2,020
28	141	e130	e175	e125	e125	e7,200	1,220	2,880	927	401	724	e1,730
29	162	e130	e175	e120	e125	e7,000	1,110	2,780	940	379	564	e1,600
30	181	e140	e170	e110	---	e6,600	1,030	5,820	982	342	455	1,490
31	174	---	e165	e105	---	e5,700	---	10,900	---	340	394	---
TOTAL	4,555	4,675	4,970	4,615	3,260	37,740	56,320	102,499	82,209	24,074	12,272	30,720
MEAN	147	156	160	149	112	1,217	1,877	3,306	2,740	777	396	1,024
MAX	181	209	175	170	125	7,200	5,500	10,900	10,200	1,290	1,050	2,190
MIN	108	114	145	105	105	120	1,030	341	927	340	254	340
AC-FT	9,030	9,270	9,860	9,150	6,470	74,860	111,700	203,300	163,100	47,750	24,340	60,930
CFSM	0.03	0.03	0.03	0.03	0.02	0.23	0.36	0.63	0.52	0.15	0.08	0.19
IN.	0.03	0.03	0.04	0.03	0.02	0.27	0.40	0.72	0.58	0.17	0.09	0.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1901 - 2004, BY WATER YEAR (WY)

MEAN	858	749	600	527	508	1,022	3,091	2,154	1,763	1,393	882	881
MAX	2,836	3,620	1,900	1,663	1,778	4,257	11,870	15,290	7,205	6,851	3,868	5,408
(WY)	(1972)	(2001)	(1904)	(1951)	(1998)	(1995)	(1997)	(1950)	(1962)	(1975)	(1985)	(1999)
MIN	8.02	10.1	5.34	15.6	17.8	24.9	232	154	80.4	26.2	12.3	8.87
(WY)	(1937)	(1937)	(1937)	(1934)	(1937)	(1936)	(1981)	(1934)	(1934)	(1936)	(1934)	(1934)

05079000 RED LAKE RIVER AT CROOKSTON, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1901 - 2004	
ANNUAL TOTAL	172,467		367,909			
ANNUAL MEAN	473		1,005		1,199	
HIGHEST ANNUAL MEAN					3,129	1950
LOWEST ANNUAL MEAN					83.6	1934
HIGHEST DAILY MEAN	4,110	Jun 27	10,900	May 31	27,500	Apr 18, 1997
LOWEST DAILY MEAN	89	Sep 8	105	Jan 31 - Feb 1	2.5	Sep 29, 1936
ANNUAL SEVEN-DAY MINIMUM	117	Sep 4	109	Jan 30	3.9	Sep 28, 1936
MAXIMUM PEAK FLOW			11,300	May 31	a28,400	Apr 12, 1969
MAXIMUM PEAK STAGE			17.80	May 31	b28.40	Apr 17, 1997
INSTANTANEOUS LOW FLOW					c0.00	Jul 13, 1960
ANNUAL RUNOFF (AC-FT)	342,100		729,700		868,700	
ANNUAL RUNOFF (CFSM)	0.090		0.191		0.228	
ANNUAL RUNOFF (INCHES)	1.22		2.60		3.09	
10 PERCENT EXCEEDS	918		2,900		2,630	
50 PERCENT EXCEEDS	235		306		738	
90 PERCENT EXCEEDS	142		121		120	

a Gage height 27.33 ft.
b From highwater mark, backwater from ice.
c From regulation by power plant upstream.
e Estimated.