RED RIVER OF THE NORTH BASIN

05079000 RED LAKE RIVER AT CROOKSTON, MN

LOCATION.--Lat 4746'32", long 9636'33", in SW *1* / *4* SW *1* / *4* 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. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1380	1790	1460	e1000	e1000	e8900	1680	1600	2280	3080	1530	1570
2	1400	1860	1480	e1000	e1000	e8000	1610	1480	2220	2690	1380	1240
3	1360	1840	e1430	e980	e1000	e6000	1560	1270	2130	2550	1290	1050
4	1360	1760	e1400	e950	e1000	e4500	1540	1270	2040	2620	1280	1050
5	1340	1820	e1350	e940	e1000	e3500	1570	1300	1990	3140	1260	1010
6	1340	1870	e1350	e930	e980	e2600	1650	1260	1920	2800	1240	947

7	1350	1830	e1380	e920	e970	e2300	1770	1290	1800	2520	1210	1060
8	1410	1850	e1400	e920	e970	e2100	1860	1320	1780	4270	1190	1020
9	1490	1880	1500	e920	e990	e1900	1890	1330	1760	4290	1130	1000
10	1790	1930	1800	e930	e960	e1750	1890	1300	1710	e3550	1110	980
11	1700	1830	1900	e920	e960	e1700	1820	1320	1720	e3200	1100	981
12	1570	1420	1860	e910	e960	e1650	1800	1380	1570	e2800	1110	1000
13	1650	1130	1770	e910	e950	e1600	1870	1850	1500	2660	1100	1020
14	1950	1550	1800	e930	e950	e1600	2230	3500	1480	2600	1080	942
15	2440	1710	1630	e940	e940	e1650	2520	3480	1560	2940	1030	956
16	2490	1620	e1550	e940	e940	e1700	2580	4530	1640	3010	1030	939
17	2320	1410	e1500	e930	e950	e1700	2530	9410	1810	2760	996	973
18	1900	e1350	e1450	e930	e960	e1750	2370	11500	1870	2640	1010	950
19	2040	e1350	e1450	e920	e960	e2000	2230	10500	2120	2260	1010	930
20	1890	e1350	e1400	e920	e980	2380	2160	8090	3340	2610	1010	960
21	1900	e1300	e1350	e910	e1000	2900	2110	5820	5090	2640	1010	925
22	1840	e1300	e1300	e910	e1100	2880	2020	5120	4810	2870	962	923
23	1840	e1350	e1250	e920	e1350	2710	1920	4540	4250	2860	1020	953
24	1800	e1500	e1200	e940	e1900	2620	1860	4260	e4200	2730	963	932
25	1790	e1700	e1150	e960	e3000	2540	1780	e3700	5100	2630	975	910
26	1780	e1800	e1100	e1000	e5000	2540	1740	3180	6070	2470	944	896
27	1760	1700	e1050	e1030	e8000	2560	1710	2910	6710	2300	973	942
28	1810	1620	e1050	e1050	e9000	2640	1690	2330	6340	2180	1040	919
29	1740	1510	e1050	e1050	---	2480	1620	2240	4780	2010	1350	898
30	1770	1500	e1030	e1030	---	2550	1580	2590	3730	1890	1840	924
31	1780	---	e1000	e1030	---	2060	---	2390	---	1600	1750	---
TOTAL	53980	48430	43390	29570	49770	87760	57160	108060	89320	85170	35923	29800
MEAN	1741	1614	1400	954	1778	2831	1905	3486	2977	2747	1159	993
MAX	2490	1930	1900	1050	9000	8900	2580	11500	6710	4290	1840	1570
MIN	1340	1130	1000	910	940	1600	1540	1260	1480	1600	944	896
AC-FT	107100	96060	86060	58650	98720	174100	113400	214300	177200	168900	71250	59110

CFSM	.33	.31	.27	.18	.34	.54	.36	.66	.56	.52	.22	.19
IN.	.38	.34	.31	.21	.35	.62	.40	.76	.63	.60	.25	.21

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1901 - 1998, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	836	695	578	516	500	997	3059	2118	1680	1356	837	821
MAX	2836	3172	1900	1663	1778	4257	11870	15290	7205	6851	3868	3009
(WY)	1972	1972	1904	1951	1998	1995	1997	1950	1962	1975	1985	1905
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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1901 - 1998		
ANNUAL TOTAL	1075320		718333				
ANNUAL MEAN	2946		1968		1162		
HIGHEST ANNUAL MEAN					3129		1950
LOWEST ANNUAL MEAN					83.6		1934
HIGHEST DAILY MEAN	27500	Apr 18	11500	May 18	27500	Apr 18	1997
LOWEST DAILY MEAN	1000	Feb 11	896	Sep 26	2.5	Sep 29	1936
ANNUAL SEVEN-DAY MINIMUM	1000	Feb 11	917	Sep 24	3.9	Sep 28	1936
INSTANTANEOUS PEAK FLOW			11700	May 18a	28400	Apr 12	1969
INSTANTANEOUS PEAK STAGE			20.45	Feb 28b	28.40c	Apr 17	1997
INSTANTANEOUS LOW FLOW					.00d	Jul 13	1960
ANNUAL RUNOFF (AC-FT)	2133000		1425000		841900		

ANNUAL RUNOFF (CFSM)	.56		.37		.22		
ANNUAL RUNOFF (INCHES)	7.59		5.07		3.00		
10 PERCENT EXCEEDS	5950		3160		2560		
50 PERCENT EXCEEDS	1500		1600		700		
90 PERCENT EXCEEDS	1050		949		115		

a Gage height, 18.25 ft.

b Backwater from ice.
c From highwater mark, backwater from ice.
d From regulation by power plant upstream.