

# RED RIVER OF THE NORTH BASIN

05102500 RED RIVER OF THE NORTH AT EMERSON, MANITOBA

(International Gaging Station)

LOCATION.--Lat 4900'30", long 9712'40", in sec. 2, T.1, R.2 E., Hydrologic Unit 09020311, on right bank 1,500 ft downstream from Canadian National Railway bridge in Emerson, 0.8 mi downstream from international boundary, 3.6 mi downstream from Pembina River, and at mile 154.3.

DRAINAGE AREA.--40,200 mi<sup>2</sup>, approximately, includes 3,800 mi<sup>2</sup> in closed basins.

PERIOD OF RECORD.--March to November 1902 (gage heights only), May 1912 to September 1929 (monthly discharge only, published in WSP 1308), October 1929 to current year.

GAGE.--Water-stage recorder. Datum of gage is Geodetic Survey of Canada Datum of 1929. See WSP 1728 or 1913 for history of changes prior to Apr. 10, 1953.

REMARKS.--At the time of publication of this report there remained some question about discharges during high-flow period between mid-April and mid-May 1997. The problem has not been resolved, but a revision will be published at a later date, if it is determined that a substantial change from published figures is necessary.

COOPERATION.-- This station is one of the international gaging stations maintained by Canada under agreement with the United States. Records provided by Water Survey of Canada.

## 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	2640	3880	e3180	e2250	e1960	e12800	e27400	9150	19600	e20100	5620	2630
2	2630	3810	e3170	e2210	e1970	e15300	27100	8760	16800	e21000	5300	2740
3	2630	3780	e3130	e2160	e1970	e17600	26500	8480	14100	21700	5010	2920
4	2630	3740	e3060	e2130	e1980	e19400	25800	8160	12000	22200	4730	3040
5	2630	3740	e3010	e2080	e1970	e21200	25300	7840	10500	22500	4520	3030
6	2620	3740	e2970	e2040	e1970	e22600	24800	7490	9390	22600	4340	2880
7	2610	3710	e2930	e1990	e1960	e23900	24500	7130	8580	22500	4170	2710
8	2600	3710	e2900	e1910	e1930	e25200	24100	6820	7910	22300	4030	2570
9	2640	3670	e2840	e1830	e1900	e26100	23400	6530	7350	22100	3880	2480

10	2680	3670	e2770	e1790	e1880	e26800	22800	6320	6850	21900	3780	2400
11	2830	e3600	e2710	e1770	e1870	e27300	22100	6220	6430	21500	3670	2360
12	3160	e3230	e2680	e1770	e1870	e27500	21300	6140	6110	21200	3570	2340
13	3670	e2970	e2660	e1760	e1880	e27400	20500	6110	5930	20700	3470	2320
14	4060	e3140	e2650	e1770	e1890	e26800	19800	6180	5690	20200	3330	2310
15	4200	e3430	e2660	e1790	e1910	e25900	19300	7170	5440	19600	3190	2290
16	4200	e3600	e2680	e1820	e1950	e24400	18800	10200	5260	18900	3080	2270
17	4380	e3460	e2710	e1830	e1960	e22500	18600	12800	5300	18000	3010	2270
18	4870	e3240	e2740	e1830	e1960	e20200	18300	14400	5440	17200	2970	2260
19	5300	e3160	e2760	e1840	e1970	e18000	17900	16200	5830	16100	2960	2250
20	5580	e3170	e2770	e1840	e1970	e15900	17400	18300	6320	14800	2960	2220
21	5620	e3210	e2750	e1860	e1980	e14200	16800	20300	6920	13300	2960	2160
22	5510	e3270	e2730	e1890	e2010	e13000	16000	22100	8300	11800	2950	e2130
23	5330	e3310	e2690	e1920	e2100	e12100	15100	23700	10800	10500	2920	2100
24	5120	e3330	e2660	e1930	e2230	e11800	14300	25000	13000	9460	2900	2070
25	4940	e3340	e2610	e1940	e2440	e12000	13500	25700	14600	8830	2860	2020
26	4770	e3290	e2550	e1940	e3110	e13300	12700	26000	15700	8260	2830	1980
27	4560	e3210	e2490	e1940	e5790	e15900	12000	26100	16500	7800	2810	1960
28	4380	e3140	e2440	e1950	e10100	e19600	11200	26000	17300	7350	2780	1960
29	4240	e3110	e2380	e1950	---	e23400	10400	25400	18100	6890	2710	1960
30	4100	e3140	e2330	e1950	---	e25900	9680	24000	e19100	6430	2630	1920
31	3960	---	e2280	e1950	---	e27300	---	22100	---	6000	2600	---
TOTAL	121090	102800	84890	59630	68480	635300	577380	446800	311150	503720	108540	70550
MEAN	3906	3427	2738	1924	2446	20490	19250	14410	10370	16250	3501	23520
MAX	5620	3880	3180	2250	10100	27500	27400	26100	19600	22600	5620	30400
MIN	2600	2970	2280	1760	1870	11800	9680	6110	5260	6000	2600	1920
AC-FT	240200	203900	168400	118300	135800	1260000	1145000	886200	617200	999100	215300	139900
CFSM	.11	.09	.08	.05	.07	.56	.53	.40	.28	.45	.10	.06
IN.	.12	.11	.09	.06	.07	.65	.59	.46	.32	.51	.11	.07

e Estimated

# STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1998, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1651	1457	1080	902	872	2701	14300	10230	5455	4431	2266	1752
MAX	6015	5163	2945	2053	2446	20490	48890	72820	25430	28020	27000	10010
(WY)	1995	1972	1995	1951	1998	1998	1997	1950	1962	1975	1993	1993
MIN	28.7	23.8	33.5	7.05	1.21	2.25	1282	663	196	121	46.6	23.8
(WY)	1937	1937	1937	1937	1937	1937	1938	1934	1934	1936	1934	1934

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1929 - 1998		
ANNUAL TOTAL	4792300		3090330				
ANNUAL MEAN	13130		8467		3929		
HIGHEST ANNUAL MEAN					12830		1997
LOWEST ANNUAL MEAN					333		1934
HIGHEST DAILY MEAN	133000	Apr 26	27500	Mar 12	133000	Apr 26	1997
LOWEST DAILY MEAN	1860	Jan 28	1760	Jan 13	.90	Feb 6	1937
ANNUAL SEVEN-DAY MINIMUM	1870	Jan 23	1780	Jan 10	.97	Feb 4	1937
INSTANTANEOUS PEAK FLOW			27500	Mar 12	133000	Apr 26	1997
INSTANTANEOUS PEAK STAGE			777.80a	Mar 12	792.41	Apr 26	1997
INSTANTANEOUS LOW FLOW					.90	Feb 6	1937
ANNUAL RUNOFF (AC-FT)	9506000		6130000		2846000		
ANNUAL RUNOFF (CFSM)	.36		.23		.11		
ANNUAL RUNOFF (INCHES)	4.90		3.16		1.47		
10 PERCENT	33000		22400		8830		

EXCEEDS							
50 PERCENT EXCEEDS	3290		3880		1580		
90 PERCENT EXCEEDS	2090		1960		237		

a Backwater from ice.

