RED RIVER OF THE NORTH BASIN

05092000 RED RIVER OF THE NORTH AT DRAYTON, ND

LOCATION.--Lat 48°34'20", long 97°08'50", in SE¼SE¼SE¼ sec. 24, T.159 N., R.51 W., Pembina County, Hydrologic Unit 09020311, on downstream side of bridge on North Dakota State Highway 11, at the North Dakota-Minnesota border, 1.5 mi northeast of Drayton, and at mile 206.7.

DRAINAGE AREA.--34,800 mi² , approximately, includes 3,800 mi2 in closed basins.

PERIOD OF RECORD.--April 1936 to June 1937, April 1941 to current year (fragmentary prior to April 1949).

REVISED RECORDS.--WSP 1388 1949-50. WSP 1728: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 755.00 ft above sea level (Minnesota highway bench mark). Prior to Nov. 30, 1954, nonrecording gage at site 1.5 mi upstream at datum 1.59 ft higher.

REMARKS.--Records fair.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of April 1897 reached a stage of about 41 ft, at site and datum in use prior to Nov. 30, 1954.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
JUL	AUG	SEP							
1	1440	2370	e2700	e1950	e1900	e2200	e3000	71400	16600
e19000	5000	2810							
2	1510	2440	e2800	e1950	e1900	e2300	e3600	66600	e15300
e17000	4810	2780							
3	1640	2420	e2800	e1950	e1900	e2300	5200	62700	e14000
e15000	4640	2740							
4	e1700	2350	e2800	e1950	e1900	e2400	7960	58700	e13000
15200	4510	2700							
5	e1700	2370	e2700	e1950	e1800	e2400	12600	56400	e12000
16700	4380	2700							
6	e1600	2730	e2700	e1950	e1800	e2450	17300	53000	e11000
17900	4310	2700							
7	e1600	3070	e2700	e2000	e1800	e2500	20000	50200	10300
18800	4280	2720							
8	e1600	3140	e2700	e2000	e1700	e2500	e23300	49500	9660
20400	4240	2730							

9	e1550	3140	e2600	e2000	e1700	e2500	e26300	46600	8930
21200	4190	2720							
10	e1550	2920	e2500	e2000	e1700	e2500	28700	43500	8190
21300	4120	2720							
11	e1550	2900	2450	e2000	e1750	e2500	29400	42200	7600
20600	3990	2760							
12	e1600	2550	2440	e2000	e1800	e2500	e32000	40500	7160
e20000	3820	2860							
13	e1600	2130	2440	e2000	e1800	e2450	33100	38900	6690
e18000	3680	2870							
14	e1600	2040	2410	e2000	e1850	e2400	33800	37900	6280
e17000	3540	2860							
15	e1610	1980	e2350	e2000	e1900	e2370	36700	36900	5930
16400	3500	2840							
16	e1620	1970	e2300	e2000	e1900	e2330	e39300	35400	5740
16300	3430	2860							
17	e1630	1970	e2300	e2000	e1900	e2300	45100	33900	5560
16700	3350	2850							
18	e1610	1930	e2300	e2000	e1900	e2300	48800	32400	5410
17200	3290	2800							
19	e1600	1930	e2250	e2000	e1900	e2250	62000	30700	5290
17500	3260	2670							
20	e1650	1870	e2250	e2000	e1900	e2200	82100	28900	5180
17100	3240	2650							
21	e1700	e1900	e2200	e2000	e1900	e2200	102000	27000	5100
16200	3240	2740							
22	e1720	e1940	e2200	e2000	e1850	e2200	115000	25300	5040
15100	3240	2810							
23	e1750	e1970	e2150	e1950	e1800	e2200	121000	24500	5010
13500	3190	2810							
24	e1800	e2000	e2150	e1950	e1800	e2200	124000	23800	5020
11700	3160	2750							
25	1860	e2050	e2050	e1950	e1850	e2300	123000	23300	5220
9930	3120	2710							
26	1920	e2100	e2000	e1950	e1900	e2400	114000	22500	e5400
8360	3080	2640							
27	2120	e2200	e2000	e1950	e2000	e2400	103000	21700	e8000
7150	3020	2560							
28	2140	e2300	e2000	e1950	e2100	e2400	91200	21000	e15000
6380	2970	2490							
29	2230	e2400	e2000	e1950	---	e2400	81600	20100	e18000
5900	2920	2420							
30	2290	e2500	e2000	e1900	---	e2500	76200	19000	e19000
5560	2880	2430							
31	2310	---	e2000	e1900	---	e2700	---	17900	---
5270	2860	---							
TOTAL	53800	69580	73240	61150	51900	73550	1641260	1162400	270610
464350	113260	81700							
MEAN	1735	2319	2363	1973	1854	2373	54710	37500	9020
14980	3654	2723							

MAX	2310	3140	2800	2000	2100	2700	124000	71400	19000
21300	5000	2870							
MIN	1440	1870	2000	1900	1700	2200	3000	17900	5010
5270	2860	2420							
AC-FT	106700	138000	145300	121300	102900	145900	3255000	2306000	536800
921000	224700	162100							

- e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1997, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
JUL	AUG	SEP							
MEAN	1839	1565	1253	1095	1065	2940	15010	9263	5386
4802	2456	1856							
MAX	5194	5653	3072	2065	1978	15720	54710	58890	23420
28240	21580	7912							
(WY)	1995	1972	1972	1966	1996	1995	1997	1950	1962
1975	1993	1993							
MIN	317	277	149	174	201	280	1275	938	676
348	243	329							
(WY)	1991	1977	1977	1990	1977	1962	1981	1977	1977
1988	1977	1988							

SUMMARY STATISTICS	*FOR 1996 CALENDAR YEAR*		*FOR 1997 WATER YEAR*		*WATER YEARS 1949 - 1997*	
ANNUAL TOTAL	2970330		4116800			
ANNUAL MEAN	8116		11280		4064	
HIGHEST ANNUAL MEAN						
11280 1997						
LOWEST ANNUAL MEAN						
536 1977						
HIGHEST DAILY MEAN	60500	Apr 25	124000	Apr 24	124000	Apr
24 1997						
LOWEST DAILY MEAN	1420	Sep 29	1440	Oct 1	110	Dec
23 1989						
ANNUAL SEVEN-DAY MIN	1440	Sep 25	1580	Oct 6	118	Dec
28 1989						
INSTANTANEOUS PEAK FLOW			124000	Apr 24	124000	Apr
24 1997						
INSTANTANEOUS PEAK STAGE			45.55	Apr 24	45.55	Apr
24 1997						
INSTANTANEOUS LOW FLOW					7.7	Oct
16 1936						
ANNUAL RUNOFF (AC-FT)	5892000		8166000		2944000	
10 PERCENT EXCEEDS	27800		32200		8900	
50 PERCENT EXCEEDS	2390		2700		1780	
90 PERCENT EXCEEDS	1730		1850		472	

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT										
15...	1425	1610	602	--	20.5	13.5	--	--	--	--
JAN										
03...	1400	1950	579	--	-10.0	0.5	--	--	--	--
MAR										
07...	1610	2500	672	--	-0.5	0.5	--	--	--	--
JUL										
21...	1415	16100	--	--	26.0	21.5	--	--	--	--
SEP										
18...	1630	2780	552	8.3	14.5	17.5	240	215	52	27

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC- FT) (70303)

SEP 18...	28	20	0.8	5.7	61	30	0.10	333	337	0.46

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)
SEP 18...	2530	3	50	<1.0	30	10	<0.1	<1.0	<1	210