

RED RIVER OF THE NORTH BASIN

05051500 RED RIVER OF THE NORTH AT WAHPETON, N.D.

LOCATION.--Lat 46° 15'55", long 96° 35'40", in NE¼ sec. 8, T.132 N., R.47 W., Richland County, Hydrologic Unit 09020104, on left bank in Wahpeton, 800 ft downstream from confluence of Bois de Sioux and Otter Tail Rivers, and at mile 548.6.

DRAINAGE AREA.--4,010 mi², approximately.

PERIOD OF RECORD.--April 1942 to October 1942, March 1943 to current year. Gage-height records collected in this vicinity since 1917 are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder and concrete and wooden dam. Datum of gage is 942.97 ft above sea level. Prior to Aug. 6, 1943, National Weather Service nonrecording gage 800 ft upstream, converted to present datum. Aug. 6, 1943 to Oct. 27, 1950, nonrecording gage at present site and datum.

REMARKS.--Records fair. Flow regulated by Orwell Reservoir, capacity, 14,100 acre-ft at elevation 1,070 ft above sea level, adjustment of 1912; Lake Traverse, capacity, 137,000 acre-ft, available for flood control; numerous other controlled lakes and ponds, and several power plants.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 17.0 ft, discharge, 10,500 ft³/s, occurred in the spring of 1897.

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	265	386	e310	e430	e600	e900	e1400	5850	2410
1260	795	711							
2	292	378	e300	e430	e610	e900	e2000	5590	2370
1290	804	714							
3	299	392	e290	e430	e610	e900	e3000	5310	2290
1380	812	708							
4	311	333	e280	e430	e610	e900	e5800	4970	2170
1500	811	725							
5	363	323	e260	e400	e610	e900	e9000	4690	2240

1510	809	756							
6	328	292	e400	e350	e610	e900	e10000	4420	2280
1500	827	755							
7	252	259	e420	e370	e610	e900	e9000	4200	2250
e1540	808	754							
8	223	254	e450	e400	e610	e900	e7500	3940	2210
e1300	799	768							
9	189	273	e500	e430	e610	e900	e7200	3660	2170
e1200	811	728							
10	137	329	e500	e430	e610	e900	e7000	3420	2120
e1100	811	654							
11	115	353	e480	e390	e610	e900	e8000	3210	2000
e1080	804	e390							
12	108	309	e470	e370	e615	e900	e8800	3050	1960
1050	800	e200							
13	107	316	e450	e400	e650	e900	10000	2960	1940
990	798	e350							
14	102	319	e440	e440	e680	e910	11300	2910	1890
937	793	e500							
15	100	214	e430	e480	e700	e910	12700	2830	1850
898	769	e600							
16	119	220	e420	e440	e720	e910	12500	2810	1790
885	723	e630							
17	223	262	e440	e420	e750	e920	12300	2780	1660
882	717	590							
18	262	222	e380	e420	e780	e930	12200	2750	1490
883	709	586							
19	251	e250	e320	e470	e800	e950	12000	2710	1430
879	728	559							
20	242	e300	e400	e500	e800	e950	11800	2700	1440
871	738	505							
21	227	e330	e440	e520	e820	e950	11400	2680	1430
871	738	504							
22	211	e320	e430	e530	e840	e950	11000	2710	1410
864	740	506							
23	214	e310	e420	e530	e860	e950	10600	2780	1420
860	752	549							
24	306	e300	e400	e530	e880	e950	10000	2740	1390
861	767	589							
25	288	e290	e330	e530	e900	e980	9190	2670	1380
868	758	523							
26	231	e300	e350	e530	e900	e980	8330	2620	1380
868	736	521							
27	195	e300	e360	e530	e900	e980	7600	2590	1260
860	691	515							
28	182	e320	e380	e530	e900	e980	7050	2560	1190
859	702	525							
29	204	e320	e400	e530	---	e1000	6610	2540	1250
855	732	519							
30	229	e320	e450	e550	---	e1100	6220	2520	1250
852	725	523							

31	229	---	e440	e600	---	e1200	---	2490	---
826	717	---							
TOTAL	6804	9094	12340	14340	20195	29200	261500	103660	53320
32379	23724	17450							
MEAN	219	303	398	463	721	942	8717	3344	1777
1044	765	582							
MAX	363	392	500	600	900	1200	12700	5850	2410
1540	827	768							
MIN	100	214	260	350	600	900	1400	2490	1190
826	691	200							
AC-FT	13500	18040	24480	28440	40060	57920	518700	205600	105800
64220	47060	34630							

- e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1997, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
JUL	AUG	SEP							
MEAN	329	307	276	269	284	670	1422	1115	1055
780	422	334							
MAX	1599	952	820	678	721	2629	8717	3344	2675
2787	2496	2148							
(WY)	1994	1987	1987	1986	1997	1995	1997	1997	1962
1993	1993	1993							
MIN	5.72	7.40	6.60	8.81	18.0	84.3	138	22.5	90.0
65.6	53.5	2.18							
(WY)	1977	1977	1977	1977	1977	1977	1977	1977	1977
1977	1977	1976							

SUMMARY STATISTICS FOR 1996 CALENDAR YEAR FOR 1997 WATER YEAR WATER YEARS 1942 - 1997

ANNUAL TOTAL		349449		584013					
ANNUAL MEAN		955		1600				601	
HIGHEST ANNUAL MEAN									
1600		1997							
LOWEST ANNUAL MEAN									
54.0		1977							
HIGHEST DAILY MEAN				5320	May 19	12700	Apr 15	12700	
Apr 15		1997							
LOWEST DAILY MEAN				85	Sep 18	100	Oct 15	1.7	
Aug 28		1976							
ANNUAL SEVEN-DAY MINIMUM				113	Oct 10	113	Oct 10	1.7	
Aug 28		1976							
INSTANTANEOUS PEAK FLOW						12800	Apr 15	12800	
Apr 15		1997							
INSTANTANEOUS PEAK STAGE						19.42a	Apr 6	19.42a	
Apr 6		1997							
INSTANTANEOUS LOW FLOW								1.7	
Aug 28		1976							

ANNUAL RUNOFF (AC-FT)	693100	1158000	435700
10 PERCENT EXCEEDS	2460	3520	1450
50 PERCENT EXCEEDS	460	756	368
90 PERCENT EXCEEDS	224	289	105

- a From floodmark, backwater from ice.

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.	SPE- CIFIC CON- DUCT- ANCE	PH WATER WHOLE FIELD (STAND- ARD	TEMPER- ATURE AIR	TEMPER- ATURE WATER	HARD- NESS TOTAL (MG/L AS	ALKA- LILITY LAB (MG/L AS	CALCIUM DIS- SOLVED (MG/L AS	AS
		SECOND	(US/CM)	UNITS)	(DEG C)	(DEG C)	CACO3)	CACO3)	AS CA)	AS
		(00061)	(00095)	(00400)	(00020)	(00010)	(00900)	(90410)	(00915)	
OCT										
02...	1020	291	469	--	4.5	12.0	--	--	--	--
NOV										
06...	1615	266	643	--	3.0	4.5	--	--	--	--
JAN										
13...	1630	400	570	--	-5.0	0.0	--	--	--	--
FEB										
05...	1100	608	719	--	-0.5	0.5	--	--	--	--
MAR										
19...	1155	949	963	--	5.0	0.5	--	--	--	--
APR										
22...	1400	10800	530	7.6	14.0	13.5	200	114	45	21
25...	1815	9240	438	--	18.0	15.0	--	--	--	--
MAY										
08...	1500	4070	--	--	7.5	12.5	--	--	--	--
14...	1650	2870	557	--	10.0	11.0	--	--	--	--
SOLIDS,			SODIUM	POTAS-		CHLO-	FLUO-	SOLIDS, SUM OF	SOLIDS, RESIDUE	

DIS- SOLVED (TONS DATE PER AC-FT) (70303) APR 22... 0.39	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	AD- SORP- TION SODIUM PERCENT (00932)	SIUM, DIS- SOLVED (MG/L AS K) (00931)	SULFATE DIS- SOLVED (MG/L AS SO4) (00935)	RIDE, DIS- SOLVED (MG/L AS CL) (00940)	RIDE, DIS- SOLVED (MG/L AS F) (00950)	CONSTITUENTS, DIS- SOLVED (MG/L (70301)	AT 180 DEG. C DIS- SOLVED (MG/L (70300)		
	9.5	9	0.3	4.3	95	9.0	0.20	253	284	
STRON- TIUM, DIS- SOLVED DATE (UG/L SR) (01080) APR 22...	SOLIDS, DIS- SOLVED (TONS DATE (UG/L DAY)	ARSENIC DIS- SOLVED (UG/L AS AS)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYBDENUM, DIS- SOLVED (UG/L AS MO)	SELENIUM, DIS- SOLVED (UG/L AS SE)	AS (01145)
	8280	3	20	<1.0	20	10	1.0	1.0	<1	210