

RED RIVER OF THE NORTH BASIN--Continued

05051500 RED RIVER OF THE NORTH AT WAHPETON, ND

LOCATION.--Lat 46°15'55", long 96°35'40", in NE¹/₄ 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 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 National Geodetic Vertical Datum of 1929. 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 good except for estimated daily discharges, which are poor. Flow regulated by; Orwell Reservoir, flood storage capacity, 13,300 acre-ft at elevation 1,070 ft, above mean sea level, adjustment of 1912; Mud Lake, flood storage capacity, 78,600 acre-ft at elevation 981 ft, above mean sea level, adjustment of 1912; Lake Traverse, flood storage capacity, 75,100 acre-ft at elevation 981 ft, above mean sea level, adjustment of 1912; and numerous other controlled lakes and ponds and several powerplants.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 812 | 639 | 510 | e450 | e390 | e1700 | 801 | 1090 | 847 | 848 | 874 | 527 |
| 2 | 748 | 626 | 511 | e450 | e385 | e2000 | 823 | 1080 | 891 | 853 | 828 | 520 |
| 3 | 699 | 591 | 511 | e450 | e385 | e2100 | 829 | 1080 | 1030 | 849 | 809 | 512 |
| 4 | 696 | 589 | 511 | e450 | e380 | e1900 | 829 | 1050 | 1080 | 836 | 782 | 506 |
| 5 | 732 | 584 | 502 | e440 | e380 | 1650 | 809 | 1030 | 1060 | 986 | 737 | 495 |
| 6 | 778 | 585 | e450 | e440 | e380 | 1640 | 803 | 1020 | 1040 | 1060 | 710 | 487 |
| 7 | 789 | 586 | e400 | e440 | e380 | 1580 | 750 | 1030 | 1050 | 990 | 711 | 479 |
| 8 | 810 | 588 | e440 | e430 | e380 | 1610 | 747 | 1110 | 1030 | 1010 | 713 | 447 |
| 9 | 832 | 584 | 497 | e430 | e380 | 2410 | 769 | 1090 | 1000 | 1080 | 705 | 415 |
| 10 | 853 | 589 | 543 | e430 | e380 | 2330 | 776 | 1090 | 980 | 1080 | 664 | 416 |
| 11 | 856 | 594 | e460 | e430 | e380 | 1890 | 777 | 1090 | 987 | 1070 | 627 | 424 |
| 12 | 852 | 588 | e440 | e420 | e380 | 1590 | 779 | 1130 | 966 | 1140 | 622 | 429 |
| 13 | 859 | 585 | e420 | e420 | e380 | 1410 | 779 | 1180 | 960 | 1340 | 631 | 444 |
| 14 | 836 | 587 | e400 | e410 | e380 | 1310 | 779 | 1180 | 944 | 1490 | 628 | 457 |
| 15 | 810 | 585 | e390 | e410 | e380 | 1200 | 785 | 1150 | 931 | 1380 | 619 | 457 |
| 16 | 775 | 585 | e380 | e400 | e380 | 1100 | 781 | 1130 | 945 | 1150 | 626 | 410 |
| 17 | 734 | 582 | e330 | e400 | e375 | 1070 | 778 | 1070 | 955 | 1160 | 593 | 381 |
| 18 | 718 | 562 | e300 | e400 | e375 | 1060 | 776 | 1030 | 943 | 1260 | 575 | 376 |
| 19 | 704 | 540 | e370 | e400 | e380 | 1040 | 834 | 1010 | 926 | 1410 | 603 | 363 |
| 20 | 679 | 517 | e410 | e400 | e380 | 1040 | 1030 | 1010 | 963 | 1470 | 603 | 344 |
| 21 | 673 | 480 | e430 | e395 | e390 | 1030 | 1080 | 1000 | 1010 | 1280 | 595 | 381 |
| 22 | 673 | 478 | e450 | e395 | e410 | 1000 | 1150 | 1000 | 1010 | 1100 | 596 | 433 |
| 23 | 669 | 494 | e480 | e395 | e450 | 1010 | 1240 | 992 | 1010 | 1060 | 627 | 418 |
| 24 | 659 | 514 | e480 | e395 | e550 | 937 | 1220 | 976 | 1000 | 1040 | 379 | 401 |
| 25 | 654 | 530 | e470 | e390 | e650 | 852 | 1180 | 974 | 1020 | 1050 | 237 | 355 |
| 26 | 653 | 548 | e460 | e390 | e800 | 877 | 1140 | 943 | 971 | 1090 | 416 | 212 |
| 27 | 653 | 549 | e460 | e390 | e1000 | 848 | 1130 | 898 | 941 | 1130 | 678 | 225 |
| 28 | 656 | 549 | e460 | e390 | e1300 | 893 | 1090 | 883 | 948 | 1110 | 692 | 487 |
| 29 | 656 | 547 | e450 | e390 | e1500 | 942 | 1050 | 851 | 896 | 1040 | 657 | 619 |
| 30 | 655 | 529 | e450 | e390 | --- | 857 | 1070 | 865 | 843 | 946 | 579 | 557 |
| 31 | 652 | --- | e450 | e390 | --- | 792 | --- | 855 | --- | 905 | 542 | --- |
| TOTAL | 22825 | 16904 | 13815 | 12810 | 14660 | 41668 | 27384 | 31887 | 29177 | 34213 | 19658 | 12977 |
| MEAN | 736 | 563 | 446 | 413 | 506 | 1344 | 913 | 1029 | 973 | 1104 | 634 | 433 |
| MAX | 859 | 639 | 543 | 450 | 1500 | 2410 | 1240 | 1180 | 1080 | 1490 | 874 | 619 |
| MIN | 652 | 478 | 300 | 390 | 375 | 792 | 747 | 851 | 843 | 836 | 237 | 212 |
| AC-FT | 45270 | 33530 | 27400 | 25410 | 29080 | 82650 | 54320 | 63250 | 57870 | 67860 | 38990 | 25740 |

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2000, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 346 | 323 | 296 | 280 | 304 | 704 | 1410 | 1122 | 1073 | 807 | 447 | 351 |
| MAX | 1599 | 952 | 967 | 678 | 868 | 2629 | 8717 | 3344 | 2675 | 2787 | 2496 | 2148 |
| (WY) | 1994 | 1987 | 1999 | 1986 | 1998 | 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 1999 CALENDAR YEAR | | FOR 2000 WATER YEAR | | WATER YEARS 1942 - 2000 | |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|-------------|
| ANNUAL TOTAL | 386883 | | 277978 | | | |
| ANNUAL MEAN | 1060 | | 760 | | 619 | |
| HIGHEST ANNUAL MEAN | | | | | 1600 | |
| LOWEST ANNUAL MEAN | | | | | 54.0 | |
| HIGHEST DAILY MEAN | 4090 | Jun 7 | 2410 | Mar 9 | 12700 | Apr 15 1997 |
| LOWEST DAILY MEAN | 279 | Aug 6 | 212 | Sep 26 | 1.7 | Aug 28 1976 |
| ANNUAL SEVEN-DAY MINIMUM | 369 | Dec 14 | 346 | Sep 21 | 1.7 | Aug 28 1976 |
| INSTANTANEOUS PEAK FLOW | | | 2630 ^a | Mar 9 | 12800 | Apr 15 1997 |
| INSTANTANEOUS PEAK STAGE | | | 9.34 ^b | Mar 3 | 19.42 ^c | Apr 6 1997 |
| INSTANTANEOUS LOW FLOW | | | | | 1.7 | Aug 28 1976 |
| ANNUAL RUNOFF (AC-FT) | 767400 | | 551400 | | 448300 | |
| 10 PERCENT EXCEEDS | 1700 | | 1130 | | 1450 | |
| 50 PERCENT EXCEEDS | 900 | | 702 | | 390 | |
| 90 PERCENT EXCEEDS | 500 | | 390 | | 109 | |

- a Gage height, 8.97 ft
- b Backwater from ice
- c Backwater from ice, from floodmark
- e Estimated

