

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 NE $\frac{1}{4}$ 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 sea level. Prior to Aug. 6, 1943, National Weather Service non-recording 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 those for estimated daily discharge, 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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 385 | 469 | e550 | e540 | 572 | e470 | 901 | 999 | 809 | 477 | 903 | 571 |
| 2 | 404 | 497 | e480 | e600 | 529 | e510 | 774 | 931 | 737 | 444 | 871 | 585 |
| 3 | 429 | 496 | e470 | e640 | 499 | e540 | 647 | 946 | 700 | 411 | 863 | 553 |
| 4 | 397 | 483 | e470 | e650 | 435 | e565 | 606 | 978 | 670 | 410 | 806 | 572 |
| 5 | 366 | 469 | e500 | e640 | 509 | e590 | 624 | 909 | 623 | 406 | 730 | 594 |
| 6 | 366 | 461 | e560 | e620 | 574 | e630 | 613 | 904 | 595 | 402 | 666 | 588 |
| 7 | 368 | 455 | e600 | 587 | 610 | e680 | 657 | 838 | 582 | 430 | 626 | 585 |
| 8 | 367 | 439 | e670 | 627 | 608 | e730 | 744 | 909 | 568 | 491 | 630 | 585 |
| 9 | 375 | 407 | e740 | 640 | 607 | e780 | 724 | 1260 | 532 | 688 | 608 | 598 |
| 10 | 444 | 406 | e800 | 625 | 545 | e840 | 721 | 1440 | 529 | 1500 | 601 | 612 |
| 11 | 448 | 408 | e900 | 607 | 594 | e940 | 752 | 1390 | 574 | 2720 | 573 | 588 |
| 12 | 467 | 404 | e960 | 600 | 620 | e1050 | 874 | 1400 | 550 | 3300 | 554 | 562 |
| 13 | 519 | 406 | e950 | 595 | 650 | e1150 | 923 | 1460 | 540 | 2980 | 546 | 516 |
| 14 | 519 | 406 | e880 | 592 | 676 | e1100 | 807 | 1450 | 538 | 2370 | 605 | 479 |
| 15 | 513 | 403 | e730 | e610 | 665 | e1100 | 753 | 1440 | 529 | 2000 | 695 | 477 |
| 16 | 507 | 403 | e600 | e620 | 650 | e1140 | 789 | 1340 | 522 | 1780 | 721 | 476 |
| 17 | 498 | 402 | e530 | e610 | 668 | e1170 | 859 | 1230 | 521 | 1560 | 740 | 463 |
| 18 | 474 | 397 | e480 | 594 | 700 | e1160 | 874 | 1310 | 516 | 1500 | 727 | 449 |
| 19 | 446 | 401 | e410 | 571 | 707 | e1030 | 823 | 1340 | 523 | 1430 | 688 | 448 |
| 20 | 433 | 402 | e420 | 585 | 667 | e930 | 787 | 1320 | 506 | 1360 | 657 | 436 |
| 21 | 434 | 415 | e500 | e575 | 563 | e850 | 787 | 1290 | 474 | 1290 | 703 | 416 |
| 22 | 433 | 442 | e540 | e550 | 537 | e810 | 817 | 1260 | 484 | 1230 | 727 | 416 |
| 23 | 433 | 443 | e440 | e510 | 528 | e760 | 823 | 1210 | 546 | 1160 | 689 | 421 |
| 24 | 433 | 444 | e350 | e470 | 528 | e690 | 796 | 1120 | 538 | 1080 | 611 | 423 |
| 25 | 448 | 459 | e380 | e490 | e440 | 571 | 751 | 1090 | 508 | 982 | 544 | 409 |
| 26 | 455 | 455 | e440 | e495 | e400 | 524 | 763 | 1070 | 507 | 865 | 464 | 399 |
| 27 | 445 | 441 | e540 | e500 | e410 | 525 | 822 | 1030 | 516 | 848 | 278 | 373 |
| 28 | 441 | e280 | e560 | 513 | e440 | 836 | 805 | 977 | 497 | 894 | 299 | 348 |
| 29 | 448 | e240 | e530 | 528 | --- | 1080 | 855 | 1080 | 476 | 883 | 387 | 366 |
| 30 | 450 | e420 | e500 | 549 | --- | 1150 | 1000 | 1220 | 472 | 864 | 379 | 366 |
| 31 | 452 | --- | e500 | 568 | --- | 1060 | --- | 969 | --- | 881 | 493 | --- |
| TOTAL | 13597 | 12653 | 17980 | 17901 | 15931 | 25961 | 23471 | 36110 | 16682 | 37636 | 19384 | 14674 |
| MEAN | 439 | 422 | 580 | 577 | 569 | 837 | 782 | 1165 | 556 | 1214 | 625 | 489 |
| MAX | 519 | 497 | 960 | 650 | 707 | 1170 | 1000 | 1460 | 809 | 3300 | 903 | 612 |
| MIN | 366 | 240 | 350 | 470 | 400 | 470 | 606 | 838 | 472 | 402 | 278 | 348 |
| AC-FT | 26970 | 25100 | 35660 | 35510 | 31600 | 51490 | 46550 | 71620 | 33090 | 74650 | 38450 | 29110 |

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2002, BY WATER YEAR (WY)

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 342 | 321 | 295 | 286 | 308 | 705 | 1473 | 1148 | 1079 | 831 | 443 | 344 |
| MAX | 1599 | 952 | 820 | 678 | 868 | 2629 | 8717 | 3344 | 2981 | 2787 | 2496 | 2148 |
| (WY) | 1994 | 1987 | 1987 | 1986 | 1998 | 1995 | 1997 | 1997 | 2001 | 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 2001 CALENDAR YEAR | FOR 2002 WATER YEAR | WATER YEARS 1942 - 2002 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 578631 | 251980 | |
| ANNUAL MEAN | 1585 | 690 | 628 |
| HIGHEST ANNUAL MEAN | | | 1600 1997 |
| LOWEST ANNUAL MEAN | | | 54.0 1977 |
| HIGHEST DAILY MEAN | 9260 Apr 9 | 3300 Jul 12 | 12700 Apr 15 1997 |
| LOWEST DAILY MEAN | 188 Aug 16 | 240 Nov 29 | 1.7 Aug 28 1976 |
| ANNUAL SEVEN-DAY MINIMUM | 381 Oct 3 | 381 Oct 3 | 1.7 Aug 28 1976 |
| MAXIMUM PEAK FLOW | | 3350 Jul 12 | 12800 Apr 15 1997 |
| MAXIMUM PEAK STAGE | | 10.09 Jul 12 | 19.42a Apr 6 1997 |
| INSTANTANEOUS LOW FLOW | | | 1.7 Aug 28 1976 |
| ANNUAL RUNOFF (AC-FT) | 1148000 | 499800 | 455200 |
| 10 PERCENT EXCEEDS | 3260 | 1110 | 1450 |
| 50 PERCENT EXCEEDS | 650 | 585 | 390 |
| 90 PERCENT EXCEEDS | 420 | 409 | 109 |

a Backwater from ice; from floodmark.
e Estimated.

