

## 05054000 RED RIVER OF THE NORTH AT FARGO, ND

LOCATION.--Lat 46°51'40", long 96°47'00", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.18, T.139 N., R.48 W., Cass County, Hydrologic Unit 09020104, at waterplant on 4th Street South in Fargo, 25 mi upstream from mouth of Sheyenne River, and at mile 453.

DRAINAGE AREA.--6,800 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--June 1901 to current year. Published as "at Moorhead, MN.", 1901. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1902-4, 1906-7, 1910-14, 1916, 1918, 1924. WSP 1388: 1905-6, 1917-20(M), 1935(M), 1938-39(M), 1943.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 861.8 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1960, to Sept. 30, 1962, water-stage recorder at present site at datum 5.6 ft higher. See WSP 1728 or 1913 for history of changes prior to Oct. 1, 1960.

REMARKS.--Records good except for periods where discharge is less than 200 ft<sup>3</sup>/s, which are fair and 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. Figures of daily discharge do not include diversions to cities of Fargo and Moorhead, MN, from the Sheyenne River.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 7, 1897, reached a stage of 39.1 ft present datum, discharge, 25,000 ft<sup>3</sup>/s at site 1.5 mi downstream.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN   | FEB    | MAR    | APR    | MAY    | JUN     | JUL    | AUG    | SEP    |
|-------|-------|-------|-------|-------|--------|--------|--------|--------|---------|--------|--------|--------|
| 1     | 63    | e110  | e185  | e100  | e90    | e230   | 930    | 515    | 4,410   | 734    | 455    | 223    |
| 2     | 68    | e115  | e165  | e100  | e90    | e245   | 933    | 522    | 5,100   | 709    | 578    | 216    |
| 3     | 82    | e118  | e155  | e110  | e90    | e260   | 872    | 505    | 5,380   | 714    | 525    | 183    |
| 4     | 85    | 126   | e150  | e125  | e92    | e280   | 743    | 452    | 5,380   | 668    | 467    | 302    |
| 5     | e75   | 134   | e145  | e130  | e92    | e300   | 612    | 433    | 5,030   | 632    | 432    | 1,330  |
| 6     | e70   | 114   | e135  | e130  | e94    | e320   | 515    | 411    | 4,160   | 832    | 513    | 3,500  |
| 7     | e70   | 101   | e128  | e130  | e94    | e320   | 469    | 422    | 3,190   | 744    | 658    | 3,000  |
| 8     | e72   | 88    | e118  | e130  | e94    | e320   | 454    | 448    | 2,550   | 825    | 617    | 2,190  |
| 9     | e75   | 88    | e113  | e130  | e95    | e330   | 467    | 499    | 2,180   | 1,150  | 583    | 1,850  |
| 10    | e74   | 95    | e110  | e130  | e110   | e340   | 501    | 506    | 2,010   | 1,410  | 546    | 1,540  |
| 11    | 123   | 137   | e110  | e125  | e130   | e360   | 493    | 597    | 2,010   | 1,880  | 530    | 1,330  |
| 12    | e100  | 188   | e105  | e120  | e137   | e400   | 445    | 611    | 2,060   | 2,060  | 525    | 1,150  |
| 13    | e90   | 201   | e97   | e115  | e137   | e440   | 423    | 750    | 2,070   | 2,120  | 516    | 1,010  |
| 14    | e100  | 178   | e91   | e115  | e140   | e490   | 416    | 778    | 2,100   | 1,980  | 508    | 902    |
| 15    | e100  | 182   | e88   | e115  | e142   | e560   | 414    | 664    | 2,090   | 1,870  | 513    | 918    |
| 16    | e89   | 187   | e81   | e115  | e160   | e640   | 410    | 595    | 1,950   | 1,700  | 529    | 847    |
| 17    | e95   | 178   | e81   | e115  | e175   | e690   | 406    | 600    | 1,820   | 1,540  | 534    | 765    |
| 18    | e105  | 154   | e80   | e120  | e195   | e730   | 428    | 618    | 1,690   | 1,390  | 530    | 737    |
| 19    | e96   | e140  | e80   | e120  | e200   | e840   | 475    | 691    | 1,590   | 1,310  | 520    | 885    |
| 20    | e90   | e125  | e80   | e115  | e205   | e950   | 492    | 717    | 1,510   | 1,270  | 479    | 1,040  |
| 21    | e95   | e115  | e80   | e115  | e210   | e990   | 496    | 646    | 1,440   | 1,230  | 466    | 947    |
| 22    | 106   | e108  | e83   | e115  | e210   | e1,060 | 502    | 642    | 1,380   | 1,160  | 444    | 986    |
| 23    | 124   | e98   | e90   | e115  | e210   | e1,200 | 515    | 655    | 1,330   | 1,090  | 433    | 1,570  |
| 24    | 132   | e93   | e92   | e110  | e210   | e1,280 | 524    | 656    | 1,240   | 1,020  | 414    | 2,090  |
| 25    | 124   | e90   | e93   | e94   | e210   | e1,310 | 527    | 657    | 1,090   | 950    | 394    | 2,470  |
| 26    | 111   | e94   | e94   | e90   | e210   | e1,320 | 532    | 663    | 968     | 874    | 433    | 2,810  |
| 27    | e100  | e100  | e94   | e90   | e210   | e1,320 | 532    | 671    | 871     | 808    | 479    | 2,960  |
| 28    | e95   | e115  | e94   | e90   | e220   | e1,310 | 528    | 675    | 814     | 884    | 367    | 2,960  |
| 29    | e100  | e140  | e95   | e90   | e225   | e1,270 | 514    | 745    | 785     | 676    | 258    | 2,760  |
| 30    | e108  | e210  | e97   | e90   | ---    | e1,150 | 514    | 1,260  | 752     | 527    | 214    | 2,300  |
| 31    | e110  | ---   | e99   | e90   | ---    | 1,050  | ---    | 3,100  | ---     | 472    | 222    | ---    |
| TOTAL | 2,927 | 3,922 | 3,308 | 3,479 | 4,477  | 22,305 | 16,082 | 21,704 | 68,950  | 35,229 | 14,682 | 45,771 |
| MEAN  | 94.4  | 131   | 107   | 112   | 154    | 720    | 536    | 700    | 2,298   | 1,136  | 474    | 1,526  |
| MAX   | 132   | 210   | 185   | 130   | 225    | 1,320  | 933    | 3,100  | 5,380   | 2,120  | 658    | 3,500  |
| MIN   | 63    | 88    | 80    | 90    | 90     | 230    | 406    | 411    | 752     | 472    | 214    | 183    |
| AC-FT | 5,810 | 7,780 | 6,560 | 6,900 | 8,880  | 44,240 | 31,900 | 43,050 | 136,800 | 69,880 | 29,120 | 90,790 |
| +     | 1,400 | 1,290 | 1,280 | 1,300 | 1,310  | 1,320  | 1,280  | 1,420  | 1,430   | 1,540  | 1,460  | 1,260  |
| *     | 7,210 | 9,070 | 7,840 | 8,200 | 10,190 | 45,560 | 33,180 | 44,470 | 138,230 | 71,420 | 30,580 | 92,050 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1901 - 2004, BY WATER YEAR (WY)

|      |        |        |        |        |        |        |        |        |        |        |        |        |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MEAN | 333    | 295    | 253    | 229    | 241    | 787    | 1,987  | 1,163  | 1,112  | 948    | 450    | 353    |
| MAX  | 1,741  | 942    | 1,261  | 740    | 1,353  | 4,722  | 17,920 | 5,365  | 5,122  | 5,692  | 3,293  | 2,280  |
| (WY) | (1994) | (1907) | (1999) | (1986) | (1998) | (1995) | (1997) | (1997) | (1962) | (1962) | (1993) | (1993) |
| MIN  | 0.00   | 0.00   | 0.00   | 0.00   | 0.18   | 26.8   | 102    | 8.12   | 2.87   | 0.00   | 0.00   | 0.00   |
| (WY) | (1935) | (1937) | (1938) | (1933) | (1933) | (1937) | (1934) | (1934) | (1936) | (1934) | (1932) | (1934) |

05054000 RED RIVER OF THE NORTH AT FARGO, ND—Continued

| SUMMARY STATISTICS       | FOR 2003 CALENDAR YEAR |            | FOR 2004 WATER YEAR |            | WATER YEARS 1901 - 2004 |              |
|--------------------------|------------------------|------------|---------------------|------------|-------------------------|--------------|
| ANNUAL TOTAL             | 252,776                |            | 242,836             |            | 681                     |              |
| ANNUAL MEAN              | 693                    | *(715)     | 663                 | *(688)     | 17.5                    | 1934         |
| HIGHEST ANNUAL MEAN      |                        |            |                     |            | 2,619                   | 1997         |
| LOWEST ANNUAL MEAN       |                        |            |                     |            | 17.5                    | 1934         |
| HIGHEST DAILY MEAN       | 6,680                  | Jun 30     | 5,380               | Jun 3      | 27,800                  | Apr 17, 1997 |
| LOWEST DAILY MEAN        | 46                     | Sep 27     | 63                  | Oct 1      | 0.00                    | Jul 25, 1932 |
| ANNUAL SEVEN-DAY MINIMUM | 53                     | Sep 24     | 73                  | Oct 1      | 0.00                    | Jul 25, 1932 |
| MAXIMUM PEAK FLOW        |                        |            | 5,430               | Jun 3      | 28,000                  | Apr 17, 1997 |
| MAXIMUM PEAK STAGE       |                        |            | 20.47               | Jun 3      | 39.72                   | Apr 18, 1997 |
| ANNUAL RUNOFF (AC-FT)    | 501,400                | *(517,800) | 481,700             | *(498,000) | 493,000                 |              |
| 10 PERCENT EXCEEDS       | 1,400                  |            | 1,620               |            | 1,520                   |              |
| 50 PERCENT EXCEEDS       | 340                    |            | 432                 |            | 335                     |              |
| 90 PERCENT EXCEEDS       | 90                     |            | 92                  |            | 43                      |              |

+ Diversions in acre-ft to cities of Fargo and Moorhead  
 \* Adjusted for diversions to cities of Fargo and Moorhead  
 e Estimated

