

## 05092000 RED RIVER OF THE NORTH AT DRAYTON, ND

LOCATION.--Lat 48°34'20", long 97°08'50", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.24, T.159 N., R.51 W., Pembina County, Hydrologic Unit 09020311, on downstream side of bridge on North Dakota State Highway 66, at the North Dakota-Minnesota border, 1.5 mi northeast of Drayton, and at mile 206.7.

DRAINAGE AREA.--34,800 mi<sup>2</sup> (approximately) includes 3,800 mi<sup>2</sup> 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, National Geodetic Vertical Datum of 1929 (Minnesota Department of Transportation benchmark). Prior to Nov. 30, 1954, nonrecording gage at site 1.5 mi upstream at datum 1.59 ft higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

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, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

| DAY   | OCT     | NOV     | DEC    | JAN    | FEB    | MAR     | APR     | MAY     | JUN     | JUL     | AUG    | SEP    |
|-------|---------|---------|--------|--------|--------|---------|---------|---------|---------|---------|--------|--------|
| 1     | e2,350  | e2,620  | e1,700 | e1,290 | e788   | e710    | e6,910  | e2,980  | 4,510   | 15,100  | e2,880 | 603    |
| 2     | 2,290   | e2,500  | e1,600 | e1,290 | e757   | e680    | e7,280  | e2,900  | e4,300  | 15,300  | e2,810 | 562    |
| 3     | 2,290   | e2,300  | e1,540 | e1,250 | e747   | e680    | e7,510  | e3,100  | e4,100  | 15,000  | e2,710 | 539    |
| 4     | 2,320   | e2,200  | e1,400 | e1,220 | e816   | e690    | e7,520  | e3,390  | e3,810  | 14,400  | e2,580 | 529    |
| 5     | 2,350   | e2,100  | e1,350 | e1,200 | e860   | e700    | e7,500  | e3,390  | e3,670  | 13,500  | e2,410 | 472    |
| 6     | 2,330   | e2,100  | e1,330 | e1,200 | e880   | e690    | e6,980  | e3,400  | e3,480  | 12,500  | e2,270 | 485    |
| 7     | 2,320   | e2,150  | e1,300 | e1,160 | e850   | e690    | e6,180  | e3,330  | e3,340  | 11,100  | e2,200 | 498    |
| 8     | 2,310   | e2,240  | e1,300 | e1,160 | e840   | e690    | e5,050  | e3,250  | e3,260  | 9,770   | e2,150 | 485    |
| 9     | 2,310   | e2,250  | e1,300 | e1,140 | e820   | e680    | e4,420  | e3,600  | e3,240  | 8,270   | e2,060 | 466    |
| 10    | 2,310   | e2,280  | e1,300 | e1,160 | e810   | e685    | e4,290  | e3,970  | e3,240  | 6,980   | e1,950 | 438    |
| 11    | 2,310   | e2,280  | e1,300 | e1,160 | e800   | e700    | e4,230  | 4,510   | e3,400  | 6,080   | e1,850 | 406    |
| 12    | 2,310   | e2,300  | e1,350 | e1,130 | e790   | e710    | e4,290  | 5,110   | e3,850  | 5,530   | e1,680 | 381    |
| 13    | 2,280   | e2,200  | e1,380 | e1,120 | e780   | e730    | e4,250  | 5,600   | 4,950   | 5,140   | e1,510 | 353    |
| 14    | 2,280   | e1,800  | e1,410 | e1,080 | e770   | e766    | e4,090  | 5,860   | 5,560   | 5,000   | e1,490 | 351    |
| 15    | 2,270   | e1,400  | e1,430 | e1,050 | e750   | e790    | e3,850  | 5,830   | 5,940   | 5,140   | e1,460 | 428    |
| 16    | 2,270   | e1,500  | e1,470 | e1,020 | e740   | e838    | e3,410  | 5,590   | 6,050   | 5,390   | e1,460 | 435    |
| 17    | 2,260   | e1,700  | e1,500 | e1,000 | e740   | e911    | e3,140  | 5,310   | 5,780   | 5,470   | e1,420 | 465    |
| 18    | 2,250   | e1,800  | e1,500 | e984   | e730   | e977    | e3,020  | 5,080   | 5,340   | 5,390   | e1,380 | 545    |
| 19    | 2,240   | e1,960  | e1,500 | e962   | e710   | e1,140  | e2,970  | 4,980   | 4,760   | 5,180   | e1,320 | 802    |
| 20    | 2,230   | e2,050  | e1,480 | e936   | e690   | e1,740  | e2,950  | 5,050   | e4,260  | 4,870   | e1,280 | 1,210  |
| 21    | 2,220   | e2,150  | e1,470 | e933   | e700   | e2,870  | e3,000  | 5,340   | e3,730  | e4,290  | e1,230 | 1,190  |
| 22    | 2,200   | e2,190  | e1,450 | e905   | e710   | e4,080  | e3,180  | 5,930   | e3,530  | e4,080  | e1,130 | 1,140  |
| 23    | 2,200   | e2,200  | e1,430 | e905   | e720   | e4,990  | e3,310  | 6,560   | e3,440  | e3,870  | e1,040 | 1,160  |
| 24    | 2,190   | e2,200  | e1,410 | e900   | e720   | e5,490  | e3,640  | 6,850   | e3,420  | e3,600  | e989   | 1,070  |
| 25    | 2,170   | e2,220  | e1,400 | e900   | e700   | e5,730  | e4,040  | 6,750   | e4,310  | e3,420  | e949   | 1,090  |
| 26    | 2,160   | e2,210  | e1,360 | e888   | e690   | e6,020  | e4,130  | 6,340   | 6,160   | e3,310  | e873   | 913    |
| 27    | 2,150   | e1,700  | e1,330 | e873   | e720   | e6,150  | e4,080  | 5,820   | 8,400   | e3,210  | e771   | 850    |
| 28    | e2,300  | e1,580  | e1,320 | e861   | e720   | e6,170  | e3,840  | 5,410   | 10,800  | e3,160  | e687   | 790    |
| 29    | e2,400  | e1,630  | e1,310 | e847   | ---    | e6,080  | e3,600  | 5,080   | 13,000  | e3,070  | 550    | 701    |
| 30    | e2,600  | e1,660  | e1,300 | e826   | ---    | e6,210  | e3,310  | 4,860   | 14,400  | e2,980  | 549    | 666    |
| 31    | e2,650  | ---     | e1,290 | e802   | ---    | e6,600  | ---     | 4,700   | ---     | e2,910  | 581    | ---    |
| TOTAL | 71,120  | 61,470  | 43,510 | 32,152 | 21,348 | 76,587  | 135,970 | 149,870 | 158,030 | 213,010 | 48,219 | 20,023 |
| MEAN  | 2,294   | 2,049   | 1,404  | 1,037  | 762    | 2,471   | 4,532   | 4,835   | 5,268   | 6,871   | 1,555  | 667    |
| MAX   | 2,650   | 2,620   | 1,700  | 1,290  | 880    | 6,600   | 7,520   | 6,850   | 14,400  | 15,300  | 2,880  | 1,210  |
| MIN   | 2,150   | 1,400   | 1,290  | 802    | 690    | 680     | 2,950   | 2,900   | 3,240   | 2,910   | 549    | 351    |
| AC-FT | 141,100 | 121,900 | 86,300 | 63,770 | 42,340 | 151,900 | 269,700 | 297,300 | 313,500 | 422,500 | 95,640 | 39,720 |
| CFSM  | 0.07    | 0.07    | 0.05   | 0.03   | 0.02   | 0.08    | 0.15    | 0.16    | 0.17    | 0.22    | 0.05   | 0.02   |
| IN.   | 0.09    | 0.07    | 0.05   | 0.04   | 0.03   | 0.09    | 0.16    | 0.18    | 0.19    | 0.26    | 0.06   | 0.02   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2003, BY WATER YEAR (WY)

|      |        |        |        |        |        |        |        |        |        |        |        |        |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MEAN | 1,949  | 1,908  | 1,458  | 1,197  | 1,159  | 3,372  | 14,770 | 9,234  | 5,827  | 5,414  | 2,613  | 2,120  |
| MAX  | 5,194  | 11,840 | 4,168  | 2,679  | 2,598  | 16,290 | 54,710 | 58,890 | 23,420 | 28,240 | 21,580 | 12,140 |
| (WY) | (1995) | (2001) | (1999) | (2001) | (1998) | (1998) | (1997) | (1950) | (1962) | (1975) | (1993) | (1999) |
| MIN  | 13.8   | 277    | 149    | 174    | 201    | 280    | 1,275  | 938    | 399    | 118    | 50.1   | 27.4   |
| (WY) | (1937) | (1977) | (1977) | (1990) | (1977) | (1962) | (1981) | (1977) | (1936) | (1936) | (1936) | (1936) |

05092000 RED RIVER OF THE NORTH AT DRAYTON, ND—Continued

| SUMMARY STATISTICS       | FOR 2002 CALENDAR YEAR |        | FOR 2003 WATER YEAR |        | WATER YEARS 1936 - 2003 |              |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|--------------|
| ANNUAL TOTAL             | 2,328,230              |        | 1,031,309           |        |                         |              |
| ANNUAL MEAN              | 6,379                  |        | 2,826               |        | 4,388                   |              |
| HIGHEST ANNUAL MEAN      |                        |        |                     |        | 11,280 1997             |              |
| LOWEST ANNUAL MEAN       |                        |        |                     |        | 536 1977                |              |
| HIGHEST DAILY MEAN       | 34,700                 | Jun 18 | 15,300              | Jul 2  | 124,000                 | Apr 24, 1997 |
| LOWEST DAILY MEAN        | 1,290                  | Dec 31 | 351                 | Sep 14 | 7.7                     | Oct 16, 1936 |
| ANNUAL SEVEN-DAY MINIMUM | 1,310                  | Dec 5  | 399                 | Sep 10 | 9.9                     | Oct 11, 1936 |
| MAXIMUM PEAK FLOW        |                        |        | 15,300              | Jul 2  | 124,000                 | Apr 24, 1997 |
| MAXIMUM PEAK STAGE       |                        |        | 21.12               | Jul 2  | 45.55                   | Apr 24, 1997 |
| INSTANTANEOUS LOW FLOW   |                        |        |                     |        | 7.7                     | Oct 16, 1936 |
| ANNUAL RUNOFF (AC-FT)    | 4,618,000              |        | 2,046,000           |        | 3,179,000               |              |
| ANNUAL RUNOFF (CFSM)     | 0.21                   |        | 0.091               |        | 0.14                    |              |
| ANNUAL RUNOFF (INCHES)   | 2.79                   |        | 1.24                |        | 1.92                    |              |
| 10 PERCENT EXCEEDS       | 20,500                 |        | 5,890               |        | 10,100                  |              |
| 50 PERCENT EXCEEDS       | 2,850                  |        | 2,190               |        | 1,930                   |              |
| 90 PERCENT EXCEEDS       | 1,700                  |        | 700                 |        | 499                     |              |

e Estimated.

