

RED RIVER OF THE NORTH BASIN

05062500 WILD RICE RIVER AT TWIN VALLEY, MN

LOCATION.--Lat 47° 16'00", long 96° 14'40", in NW¼NE¼ sec. 27, T.144 N., R.44, Norman County, Hydrologic Unit 09020108, on left bank 100 ft upstream from highway bridge, 0.8 mi northeast of Twin Valley, and 2 mi upstream from small tributary.

DRAINAGE AREA.--929 mi² (updated, 1996).

PERIOD OF RECORD.--June 1909 to September 1917, July 1930 to September 1983, October 1989 to current year. Monthly discharge only for some periods, published in WSP 1308. October 1983 to September 1989, annual maximums only.

REVISED RECORDS.--WSP 955: 1941. WSP 1308: 1915(M), 1917(M).

GAGE.--Water-stage recorder. Datum of gage is 1,008.16 ft above mean sea level (U.S. Army Corps of Engineers bench mark). June 1909 to September 1917, nonrecording gage at site 0.2 mi downstream at different datum. July 23, 1930 to Nov. 24, 1934, nonrecording gage at highway bridge 100 ft downstream from present site at present datum. Nov. 25, 1934 to Aug. 2, 1950, water-stage recorder 80 ft upstream from present site at present datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow slightly regulated by Rice Lake and many other small lakes above station.

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 | 41 | 218 | e125 | e98 | e110 | e110 | e260 | 932 | 536 |
| 1180 | 343 | 139 | | | | | | | |
| 2 | 40 | 155 | e120 | e98 | e110 | e110 | e370 | 876 | 500 |
| 1190 | 323 | 135 | | | | | | | |
| 3 | 41 | 224 | e120 | e98 | e110 | e110 | e900 | 816 | 476 |
| 1170 | 325 | 135 | | | | | | | |
| 4 | 41 | 281 | e115 | e100 | e110 | e110 | e3800 | 754 | 463 |
| 1200 | 309 | 129 | | | | | | | |
| 5 | 40 | 272 | e115 | e100 | e115 | e110 | e5000 | 711 | 438 |
| 1120 | 296 | 124 | | | | | | | |
| 6 | 39 | 267 | e110 | e100 | e115 | e110 | e8200 | 672 | 400 |
| 1100 | 295 | 121 | | | | | | | |
| 7 | 36 | 273 | e110 | e100 | e115 | e110 | e4500 | 639 | 364 |
| 1010 | 299 | 121 | | | | | | | |
| 8 | 36 | 277 | e105 | e100 | e115 | e110 | e3400 | 636 | 331 |
| 983 | 282 | 124 | | | | | | | |
| 9 | 38 | 273 | e105 | e100 | e115 | e110 | e2900 | 633 | 308 |
| 944 | 265 | 121 | | | | | | | |

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|-------|------|------|------|------|------|------|-------|-------|-------|
| 10 | 37 | 266 | e104 | e100 | e115 | e110 | e2700 | 630 | 290 |
| 917 | 257 | 122 | | | | | | | |
| 11 | 37 | e250 | e100 | e100 | e115 | e115 | e2700 | 607 | 276 |
| 868 | 253 | 117 | | | | | | | |
| 12 | 34 | e250 | e100 | e100 | e115 | e120 | 2860 | 579 | 258 |
| 825 | 243 | 115 | | | | | | | |
| 13 | 34 | e240 | e100 | e100 | e110 | e120 | 3170 | 563 | 239 |
| 848 | 230 | 112 | | | | | | | |
| 14 | 33 | e230 | e100 | e100 | e110 | e120 | 3730 | 539 | 221 |
| 1120 | 220 | 113 | | | | | | | |
| 15 | 30 | e220 | e98 | e100 | e110 | e115 | 4080 | 515 | 202 |
| 1490 | 213 | 112 | | | | | | | |
| 16 | 30 | e230 | e98 | e100 | e110 | e115 | 3080 | 513 | 177 |
| 1490 | 215 | 117 | | | | | | | |
| 17 | 36 | e250 | e98 | e100 | e110 | e110 | e2600 | 498 | 192 |
| 1260 | 212 | 121 | | | | | | | |
| 18 | 44 | e240 | e98 | e100 | e110 | e110 | e2400 | 494 | 194 |
| 1090 | 202 | 119 | | | | | | | |
| 19 | 46 | e230 | e98 | e100 | e110 | e110 | 2180 | 475 | 185 |
| 958 | 194 | 111 | | | | | | | |
| 20 | 62 | e210 | e98 | e100 | e110 | e115 | 1960 | 457 | 183 |
| 868 | 193 | 105 | | | | | | | |
| 21 | 86 | e200 | e98 | e105 | e105 | e120 | 1780 | 437 | 174 |
| 797 | 193 | 102 | | | | | | | |
| 22 | 87 | e190 | e98 | e105 | e105 | e120 | 1620 | 415 | 165 |
| 737 | 179 | 97 | | | | | | | |
| 23 | 76 | e180 | e98 | e110 | e105 | e120 | 1500 | 543 | 185 |
| 678 | 170 | 94 | | | | | | | |
| 24 | 78 | e170 | e98 | e110 | e105 | e120 | 1380 | 812 | 255 |
| 627 | 165 | 93 | | | | | | | |
| 25 | 75 | e160 | e98 | e110 | e105 | e120 | 1450 | 980 | 370 |
| 583 | 160 | 89 | | | | | | | |
| 26 | 55 | e150 | e98 | e110 | e105 | e119 | 1350 | 914 | 532 |
| 544 | 153 | 85 | | | | | | | |
| 27 | 56 | e140 | e98 | e110 | e110 | e120 | 1190 | 816 | 527 |
| 508 | 148 | 84 | | | | | | | |
| 28 | 53 | e140 | e98 | e110 | e110 | e135 | 1080 | 736 | 422 |
| 468 | 149 | 91 | | | | | | | |
| 29 | 85 | e135 | e98 | e110 | --- | e150 | 1020 | 685 | 571 |
| 432 | 145 | 90 | | | | | | | |
| 30 | 173 | e130 | e98 | e110 | --- | e180 | 967 | 631 | 1390 |
| 399 | 140 | 97 | | | | | | | |
| 31 | 227 | --- | e98 | e110 | --- | e220 | --- | 579 | --- |
| 368 | 134 | --- | | | | | | | |
| TOTAL | 1826 | 6451 | 3195 | 3194 | 3090 | 3774 | 74127 | 20087 | 10824 |
| 27772 | 6905 | 3335 | | | | | | | |
| MEAN | 58.9 | 215 | 103 | 103 | 110 | 122 | 2471 | 648 | 361 |
| 896 | 223 | 111 | | | | | | | |
| MAX | 227 | 281 | 125 | 110 | 115 | 220 | 8200 | 980 | 1390 |
| 1490 | 343 | 139 | | | | | | | |

| | | | | | | | | | |
|-------|-------|-------|------|------|------|------|--------|-------|-------|
| MIN | 30 | 130 | 98 | 98 | 105 | 110 | 260 | 415 | 165 |
| 368 | 134 | 84 | | | | | | | |
| AC-FT | 3620 | 12800 | 6340 | 6340 | 6130 | 7490 | 147000 | 39840 | 21470 |
| 55090 | 13700 | 6610 | | | | | | | |
| CFSM | .06 | .23 | .11 | .11 | .12 | .13 | 2.66 | .70 | .39 |
| .96 | .24 | .12 | | | | | | | |
| IN. | .07 | .26 | .13 | .13 | .12 | .15 | 2.97 | .80 | .43 |
| 1.11 | .28 | .13 | | | | | | | |

- e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 1997, BY WATER YEAR (WY)

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN |
|------|------|------|------|------|------|------|------|------|------|
| JUL | AUG | SEP | | | | | | | |
| MEAN | 90.6 | 81.0 | 54.0 | 41.9 | 39.2 | 139 | 607 | 430 | 306 |
| 249 | 109 | 86.7 | | | | | | | |
| MAX | 614 | 488 | 201 | 132 | 137 | 828 | 2471 | 2259 | 1564 |
| 1929 | 1024 | 788 | | | | | | | |
| (WY) | 1974 | 1972 | 1995 | 1996 | 1996 | 1995 | 1997 | 1950 | 1943 |
| 1909 | 1993 | 1973 | | | | | | | |
| MIN | 6.10 | 9.31 | 6.00 | 4.00 | 4.00 | 12.8 | 73.8 | 30.9 | 26.4 |
| 8.04 | 3.02 | 2.96 | | | | | | | |
| (WY) | 1933 | 1933 | 1933 | 1933 | 1933 | 1940 | 1931 | 1977 | 1977 |
| 1934 | 1932 | 1936 | | | | | | | |

| <i>SUMMARY STATISTICS</i> | <i>FOR 1996 CALENDAR YEAR</i> | <i>FOR 1997 WATER YEAR</i> | <i>WATER YEARS 1909 - 1997</i> |
|---------------------------|-------------------------------|----------------------------|--------------------------------|
| ANNUAL TOTAL | 123521 | 164580 | |
| ANNUAL MEAN | 337 | 451 | 183a |
| HIGHEST ANNUAL MEAN | | | |
| 500 | 1950 | | |
| LOWEST ANNUAL MEAN | | | |
| 22.7 | 1977 | | |
| HIGHEST DAILY MEAN | 3700 | Apr 14 | 8200 Apr 6 9100 |
| Jul 22 1909 | | | |
| LOWEST DAILY MEAN | 22 | Sep 20 | 30 Oct 15,16 1.1 |
| Aug 13 1932 | | | |
| ANNUAL SEVEN-DAY MIN | 24 | Sep 15 | 33 Oct 11 1.3 |
| Aug 11 1932 | | | |
| INSTANTANEOUS PEAK FLOW | | | 10000 Apr 6 10000 |
| Apr 6 1997 | | | |
| INSTANTANEOUS PEAK STAGE | | | 15.91 Apr 6 20.00 |
| Jul 22 1909 | | | |
| INSTANTANEOUS LOW FLOW | | | 29 Oct 15,16,17 .50 |
| Nov 4 1939 | | | |
| ANNUAL RUNOFF (AC-FT) | 245000 | 326400 | 132700 |
| ANNUAL RUNOFF (CFSM) | .36 | .49 | .20 |
| ANNUAL RUNOFF (INCHES) | 4.95 | 6.59 | 2.68 |
| 10 PERCENT EXCEEDS | 1010 | 1080 | 478 |
| 50 PERCENT EXCEEDS | 130 | 140 | 68 |
| 90 PERCENT EXCEEDS | 36 | 96 | 15 |

- a Median of annual mean discharges is 157 ft³/s.