

05243725 STRAIGHT RIVER NEAR PARK RAPIDS, MN

LOCATION.--Lat 46°52'30", long 95°03'56", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 11, T. 139 N., R. 35 W., Hubbard County, Hydrologic Unit 07010106, upstream from culvert on U.S. Highway 71, 3.2 mi south of Park Rapids.

DRAINAGE AREA.--53.2 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1970-71, 1973, 1975-76, October 1986 to current year (no winter records in 1987, 1990-91). May 1988 through August 1989, records of hourly water temperature (available in files of the Geological Survey).

GAGE.--Water-stage recorder. Datum of gage is 1,399.55 ft above sea level (NGVD of 1929, levels by Minnesota Department of Natural Resources).

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuations in flow due to ground-water withdrawals.

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 | 58 | 59 | e49 | e45 | e44 | e44 | 52 | 54 | 57 | 59 | 43 | 36 |
| 2 | 58 | 58 | e49 | e45 | e44 | e43 | 52 | 54 | 56 | 55 | 41 | 35 |
| 3 | 58 | 57 | e48 | e45 | e44 | e43 | 51 | 53 | 57 | 53 | 45 | 37 |
| 4 | 63 | 57 | e48 | e45 | e44 | e43 | 53 | 52 | 57 | 51 | 44 | 35 |
| 5 | 63 | 56 | e47 | e45 | e44 | e43 | 54 | 56 | 56 | 49 | 43 | 37 |
| 6 | 64 | 56 | e47 | e45 | e44 | e43 | 53 | 69 | 56 | 47 | 42 | 39 |
| 7 | 64 | 56 | e47 | e45 | e44 | e43 | 52 | 71 | 57 | 49 | 39 | 37 |
| 8 | 62 | 55 | e46 | e44 | e44 | e43 | 52 | 66 | 56 | 47 | 39 | 37 |
| 9 | 60 | 55 | e46 | e45 | e44 | e43 | 52 | 71 | 56 | 51 | 40 | 36 |
| 10 | 59 | 55 | e46 | e45 | e44 | e43 | 53 | 78 | 59 | 54 | 38 | 37 |
| 11 | 58 | 55 | e45 | e45 | e44 | e43 | 52 | 74 | 58 | 54 | 37 | 36 |
| 12 | 59 | 54 | e45 | e45 | e44 | e43 | 52 | 70 | 59 | 53 | 37 | 36 |
| 13 | 59 | 55 | e45 | e45 | e44 | e43 | 51 | 66 | 59 | 52 | 37 | 38 |
| 14 | 59 | 54 | e45 | e45 | e44 | e44 | 52 | 64 | 57 | 52 | 36 | 37 |
| 15 | 60 | 52 | e45 | e45 | e44 | e46 | 52 | 63 | 54 | 49 | 34 | 36 |
| 16 | 61 | e52 | e45 | e45 | e44 | e48 | 52 | 61 | 54 | 47 | 35 | 38 |
| 17 | 59 | e52 | e45 | e45 | e44 | e50 | 55 | 59 | 53 | 47 | 35 | 39 |
| 18 | 61 | e52 | e45 | e44 | e44 | e53 | 55 | 59 | 52 | 46 | 35 | 39 |
| 19 | 61 | 53 | e45 | e44 | e44 | e55 | 63 | 62 | 50 | 49 | 35 | 40 |
| 20 | 60 | 53 | e45 | e44 | e44 | 57 | 64 | 63 | 49 | 50 | 38 | 39 |
| 21 | 60 | 53 | e45 | e44 | e44 | 59 | 62 | 60 | 51 | 48 | 39 | 41 |
| 22 | 59 | 53 | e45 | e44 | e44 | 60 | 60 | 59 | 56 | 47 | 37 | 42 |
| 23 | 59 | 53 | e45 | e44 | e44 | 59 | 58 | 59 | 59 | 46 | 37 | 41 |
| 24 | 58 | 52 | e45 | e44 | e44 | 58 | 57 | 58 | 66 | 43 | 35 | 41 |
| 25 | 58 | e51 | e45 | e44 | e44 | 54 | 56 | 58 | 79 | 45 | 38 | 39 |
| 26 | 58 | e51 | e45 | e44 | e44 | 52 | 55 | 59 | 81 | 43 | 38 | 39 |
| 27 | 58 | e50 | e45 | e44 | e44 | 53 | 56 | 60 | 76 | 44 | 39 | 38 |
| 28 | 58 | e50 | e45 | e44 | e44 | 53 | 55 | 60 | 71 | 44 | 38 | 38 |
| 29 | 59 | e50 | e45 | e44 | --- | 51 | 55 | 59 | 67 | 43 | 37 | 38 |
| 30 | 60 | e49 | e45 | e44 | --- | 51 | 54 | 58 | 62 | 42 | 37 | 38 |
| 31 | 60 | --- | e45 | e44 | --- | 51 | --- | 59 | --- | 42 | 36 | --- |
| TOTAL | 1,853 | 1,608 | 1,418 | 1,380 | 1,232 | 1,514 | 1,640 | 1,914 | 1,780 | 1,501 | 1,184 | 1,139 |
| MEAN | 59.8 | 53.6 | 45.7 | 44.5 | 44.0 | 48.8 | 54.7 | 61.7 | 59.3 | 48.4 | 38.2 | 38.0 |
| MAX | 64 | 59 | 49 | 45 | 44 | 60 | 64 | 78 | 81 | 59 | 45 | 42 |
| MIN | 58 | 49 | 45 | 44 | 44 | 43 | 51 | 52 | 49 | 42 | 34 | 35 |
| AC-FT | 3,680 | 3,190 | 2,810 | 2,740 | 2,440 | 3,000 | 3,250 | 3,800 | 3,530 | 2,980 | 2,350 | 2,260 |
| CFSM | 1.12 | 1.01 | 0.86 | 0.84 | 0.83 | 0.92 | 1.03 | 1.16 | 1.12 | 0.91 | 0.72 | 0.71 |
| IN. | 1.30 | 1.12 | 0.99 | 0.96 | 0.86 | 1.06 | 1.15 | 1.34 | 1.24 | 1.05 | 0.83 | 0.80 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2003, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MEAN | 63.1 | 64.0 | 60.5 | 55.9 | 55.9 | 62.3 | 70.9 | 67.0 | 61.1 | 58.2 | 55.5 | 58.5 |
| MAX | 83.1 | 77.6 | 74.5 | 77.7 | 69.8 | 76.8 | 101 | 86.6 | 76.1 | 81.5 | 81.2 | 81.4 |
| (WY) | (1996) | (1998) | (1995) | (1999) | (1998) | (1995) | (1997) | (1999) | (1999) | (1997) | (1999) | (1999) |
| MIN | 42.2 | 47.4 | 45.7 | 41.9 | 44.0 | 48.8 | 54.7 | 46.2 | 41.9 | 39.5 | 35.9 | 38.0 |
| (WY) | (1993) | (1989) | (2003) | (1992) | (2003) | (2003) | (2003) | (1992) | (1992) | (1988) | (1990) | (2003) |

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| SUMMARY STATISTICS | FOR 2002 CALENDAR YEAR | | FOR 2003 WATER YEAR | | WATER YEARS 1987 - 2003 | |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|--------------|
| ANNUAL TOTAL | 21,187 | | 18,163 | | | |
| ANNUAL MEAN | 58.0 | | 49.8 | | 62.0 | |
| HIGHEST ANNUAL MEAN | | | | | 78.3 | 1999 |
| LOWEST ANNUAL MEAN | | | | | 48.0 | 1992 |
| HIGHEST DAILY MEAN | 103 | Jun 24 | 81 | Jun 26 | 144 | Apr 6, 1997 |
| LOWEST DAILY MEAN | 45 | Dec 11 | 34 | Aug 15 | a28 | Jan 9, 1992 |
| ANNUAL SEVEN-DAY MINIMUM | 45 | Dec 11 | 35 | Aug 13 | 34 | Aug 5, 1990 |
| MAXIMUM PEAK FLOW | | | b84 | Jun 25 | 149 | Apr 6, 1997 |
| MAXIMUM PEAK STAGE | | | c3.42 | Mar 15 | c3.42 | Mar 15, 2003 |
| INSTANTANEOUS LOW FLOW | | | 25 | Sep 8 | ad25 | Jan 9, 1992 |
| ANNUAL RUNOFF (AC-FT) | 42,020 | | 36,030 | | 44,930 | |
| ANNUAL RUNOFF (CFSM) | 1.09 | | 0.94 | | 1.17 | |
| ANNUAL RUNOFF (INCHES) | 14.81 | | 12.70 | | 15.84 | |
| 10 PERCENT EXCEEDS | 64 | | 60 | | 78 | |
| 50 PERCENT EXCEEDS | 58 | | 49 | | 61 | |
| 90 PERCENT EXCEEDS | 49 | | 38 | | 45 | |

- a Estimated, result of freezeup.
- b Gage height, 1.95 ft.
- c Backwater from ice.
- d Also occurred Sept. 8, 2003.
- e Estimated.

