## 01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA

**LOCATION.--**Lat 38°18'30", long 77°31'46", NAD83, Spotsylvania County, Hydrologic Unit 02080104, on right bank, along State Highway 618 (River Road), 3.1 mi upstream from Dominion Virginia Power dam, 0.7 mi downstream from Motts Run, and 5.3 mi upstream from Fredericksburg.

**DRAINAGE AREA.--**1,596 $mi^2$.

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.--**September 1907 to current year. Monthly discharge only for some periods, published in WSP 1302.

**REVISED RECORDS.--**WSP 801: 1924(M). WSP 951: 1937(M). WSP 1302: 1907-12, 1913(M), 1916(M), 1918(M), 1920- 21(M). WSP 2103: Drainage area.

**GAGE.--**Water-stage recorder. Datum of gage is 70 ft above sea level, from topographic map. Prior to Jan. 15, 1922, nonrecording gage, and Jan. 15, 1922, to Aug. 2, 1966, water-stage recorder at same site, at datum 1.00 ft higher. Aug. 2, 1966 to Oct. 17, 2000, at same site, at datum of 55.18 ft. Oct. 17, 2000 to present, at site 1.5 mi upstream, present datum.

**REMARKS.--**Records good except those for periods of doubtful or no gage-height record, Oct. 1, 11-17, June 7-10, July 30 to Aug. 1, and Sept. 14-17, and period with ice effect, Dec. 22 to Jan. 18, which are fair, and for discharges above 8,000 $ft^3/s$, which are poor. Maximum discharge, 140,000 $ft^3/s$, from rating curve extended above 76,000 $ft^3/s$ on basis of flow-over-dam and slope-area measurements at gage heights 26.1 ft and 26.9 ft, site and datum then use.

**EXTREMES OUTSIDE PERIOD OF RECORD.--**Flood in June 1889 was probably several feet lower than that of Oct. 16, 1942.

**PEAK DISCHARGES FOR CURRENT YEAR.--**Peak discharges greater than base discharge of 16,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Mar 22 | 0545 | *18,100 | *8.98 | Mar 30 | 1545 | 17,500 | 8.71 |

**DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**
**DAILY MEAN VALUES**

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | e980 | 282 | 455 | e560 | 1540 | 838 | 5570 | 872 | 1040 | 584 | e1250 | 380 |
| 2 | 919 | 281 | 434 | e550 | 1160 | 785 | 4280 | 864 | 1070 | 656 | 809 | 507 |
| 3 | 854 | 283 | 399 | e540 | 999 | 761 | 3580 | 845 | 1220 | 608 | 588 | 439 |
| 4 | 784 | 291 | 371 | e540 | 896 | 749 | 2990 | 794 | 987 | 522 | 465 | 344 |
| 5 | 713 | 290 | 339 | e560 | 852 | 894 | 2610 | 744 | 1290 | 457 | 402 | 287 |
| 6 | 651 | 293 | 350 | e590 | 937 | 1390 | 2340 | 711 | 2550 | 455 | 457 | 258 |
| 7 | 612 | 286 | 359 | e600 | 941 | 1120 | 2290 | 705 | e3400 | 436 | 451 | 239 |
| 8 | 567 | 282 | 347 | e630 | 836 | 933 | 2170 | 670 | e2300 | 406 | 343 | 218 |
| 9 | 515 | 291 | 329 | e650 | 773 | 833 | 1970 | 644 | e1700 | 371 | 297 | 202 |
| 10 | 485 | 326 | 322 | e620 | 752 | 791 | 1850 | 628 | e1350 | 403 | 271 | 198 |
| 11 | e455 | 368 | 305 | e580 | 739 | 753 | 2150 | 611 | 1140 | 401 | 284 | 195 |
| 12 | e435 | 515 | 320 | e550 | 682 | 724 | 3390 | 577 | 968 | 343 | 3510 | 181 |
| 13 | e415 | 408 | 315 | e530 | 653 | 764 | 2690 | 544 | 877 | 313 | 5520 | 189 |
| 14 | e400 | 359 | 354 | e510 | 678 | 828 | 2480 | 504 | 786 | 272 | 4150 | e200 |
| 15 | e385 | 349 | 496 | e490 | 722 | 817 | 2150 | 472 | 802 | 242 | 2270 | e175 |
| 16 | e370 | 350 | 960 | e480 | 764 | 987 | 2060 | 455 | e797 | 223 | 1280 | e160 |
| 17 | e355 | 351 | 3960 | e470 | 1080 | 1290 | 2030 | 475 | 932 | 211 | 866 | e150 |
| 18 | 342 | 327 | 7400 | e520 | 1640 | 1070 | 1800 | 505 | 953 | 212 | 683 | 150 |
| 19 | 341 | 315 | 3020 | 681 | 1160 | 894 | 1580 | 781 | 758 | 210 | 596 | 145 |
| 20 | 352 | 304 | 2150 | 4890 | 964 | 784 | 1420 | 1900 | 615 | 201 | 525 | 145 |
| 21 | 345 | 298 | 1570 | 4130 | 910 | 4280 | 1330 | 1510 | 615 | 208 | 523 | 149 |
| 22 | 326 | 292 | e1100 | 2550 | 867 | 14800 | 1290 | 2860 | 1940 | 211 | 515 | 167 |
| 23 | 318 | 291 | e900 | 1690 | 819 | 6910 | 1280 | 8680 | 3330 | 193 | 417 | 191 |
| 24 | 313 | 279 | e700 | 1370 | 863 | 4380 | 1200 | 4470 | 3040 | 173 | 389 | 188 |
| 25 | 302 | 281 | e740 | 1270 | 940 | 3340 | 1120 | 2580 | 1710 | 154 | 442 | 3240 |
| 26 | 308 | 429 | e700 | 1030 | 1060 | 2680 | 1040 | 2450 | 1170 | 178 | 506 | 2590 |
| 27 | 325 | 962 | e670 | 918 | 1090 | 2280 | 998 | 2970 | 930 | 735 | 395 | 966 |
| 28 | 319 | 1050 | e630 | 891 | 918 | 1990 | 978 | 2890 | 792 | 633 | 341 | 578 |
| 29 | 308 | 678 | e600 | 781 | --- | 1950 | 946 | 2050 | 698 | 1340 | 365 | 423 |
| 30 | 301 | 527 | e590 | 783 | --- | 13900 | 894 | 1530 | 618 | e4900 | 338 | 346 |
| 31 | 287 | --- | e570 | 1580 | --- | 8820 | --- | 1210 | --- | e2300 | 393 | --- |
| TOTAL | 14382 | 11638 | 31755 | 32534 | 26235 | 83335 | 62476 | 47501 | 40378 | 18551 | 29641 | 13600 |
| MEAN | 464 | 388 | 1024 | 1049 | 937 | 2688 | 2083 | 1532 | 1346 | 598 | 956 | 453 |
| MAX | 980 | 1050 | 7400 | 4890 | 1640 | 14800 | 5570 | 8680 | 3400 | 4900 | 5520 | 3240 |
| MIN | 287 | 279 | 305 | 470 | 653 | 724 | 894 | 455 | 615 | 154 | 271 | 145 |
| CFSM | .29 | .24 | .64 | .66 | .59 | 1.68 | 1.30 | .96 | .84 | .37 | .60 | .28 |
| IN. | .34 | .27 | .74 | .76 | .61 | 1.94 | 1.46 | 1.11 | .94 | .43 | .69 | .32 |

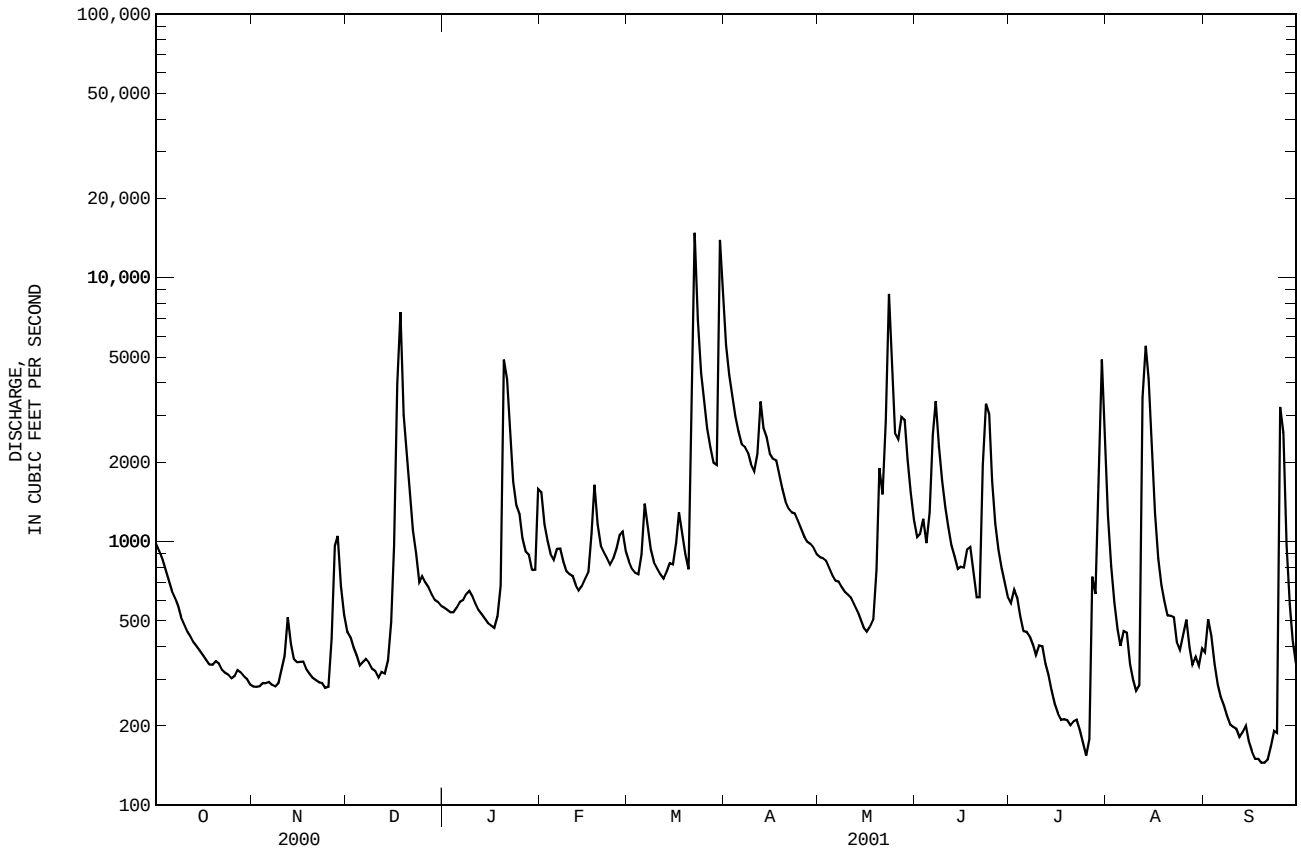
**01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued**

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 2001, BY WATER YEAR (WY)**

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 1148 | 1308 | 1661 | 2197 | 2489 | 2699 | 2480 | 1891 | 1415 | 907 | 1006 | 948 |
| MAX | 11090 | 6522 | 5357 | 6472 | 8880 | 8505 | 9484 | 10310 | 7112 | 3368 | 7190 | 6924 |
| (WY) | 1943 | 1986 | 1949 | 1996 | 1998 | 1993 | 1983 | 1924 | 1972 | 1949 | 1955 | 1996 |
| MIN | 15.3 | 75.4 | 147 | 268 | 224 | 526 | 587 | 492 | 179 | 78.6 | 21.1 | 46.5 |
| (WY) | 1931 | 1931 | 1931 | 1966 | 1931 | 1931 | 1981 | 1956 | 1999 | 1930 | 1930 | 1930 |

| SUMMARY STATISTICS | FOR 2000 CALENDAR YEAR | | FOR 2001 WATER YEAR | | WATER YEARS 1907 - 2001 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 364258 | | 412026 | | | |
| ANNUAL MEAN | 995 | | 1129 | | 1675 | |
| HIGHEST ANNUAL MEAN | | | | | 3072 | 1996 |
| LOWEST ANNUAL MEAN | | | | | 440 | 1931 |
| HIGHEST DAILY MEAN | 7400 | Dec 18 | 14800 | Mar 22 | 127000 | Oct 16 1942 |
| LOWEST DAILY MEAN | 267 | Aug 25 | 145 | aSep 19 | 5.0 | bOct 11 1930 |
| ANNUAL SEVEN-DAY MINIMUM | 287 | Nov 1 | 152 | Sep 16 | 8.3 | Oct 9 1930 |
| MAXIMUM PEAK FLOW | | | 18100 | Mar 22 | 140000 | Oct 16 1942 |
| MAXIMUM PEAK STAGE | | | 8.98 | Mar 22 | c26.90 | Oct 16 1942 |
| INSTANTANEOUS LOW FLOW | | | 136 | Sep 22 | 5.0 | Oct 11 1930 |
| ANNUAL RUNOFF (CFSM) | .62 | | .71 | | 1.05 | |
| ANNUAL RUNOFF (INCHES) | 8.49 | | 9.60 | | 14.26 | |
| 10 PERCENT EXCEEDS | 1920 | | 2550 | | 3300 | |
| 50 PERCENT EXCEEDS | 782 | | 678 | | 982 | |
| 90 PERCENT EXCEEDS | 324 | | 282 | | 232 | |

a Also Sept. 20, 2001.
b Also Oct. 12, 1930.
c From floodmarks, site and datum then in use.
e Estimated.



## 01668000 RAPPAHANNOCK RIVER NEAR FREDERICSBURG, VA--Continued

### WATER-QUALITY RECORDS

**PERIOD OF RECORD.--**Water years 1929-30, 1956, 1967-74, 1978 to 1999, 2001.

**PERIOD OF DAILY RECORD.--**
SPECIFIC CONDUCTANCE: October 1955 to September 1956, April 1968 to August 1974. October 1991 to September 1993.
WATER TEMPERATURE: October 1955 to September 1956, April 1968 to August 1974.

**COOPERATION.--**Water samples, as noted, were collected by the U.S. Geological Survey and analyzed by the Virginia Division of Consolidated Laboratory Services (VDCLS), using analytical methods approved by the U.S. Geological Survey. Analyses performed by VDCLS are reported to U.S. Geological Survey rounding specifications. Results of chemical analyses provided by VDCLS were quality-assured and approved by the U.S. Geological Survey.

### WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

| DATE | TIME | SAMPLE TYPE | TEMPER-ATURE WATER (DEG C) (00010) | TEMPER-ATURE AIR (DEG C) (00020) | BARO-METRIC PRES-SURE (MM OF HG) (00025) | AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027) | AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028) | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | GAGE HEIGHT (FEET) (00065) | TUR-BID-ITY (NTU) (00076) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | OXYGEN, DIS-SOLVED (MG/L) (00300) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 24... | 1000 | ENVIRONMENTAL | 13.9 | 13.5 | 765 | USGS | VDCLS | 312 | 1.98 | 2.7 | 92 | 10.7 |
| NOV | | | | | | | | | | | | |
| 08... | 1215 | ENVIRONMENTAL | 11.6 | 16.3 | 758 | USGS | VDCLS | 281 | 1.99 | 1.7 | 99 | 11.2 |
| 27... | 1115 | ENVIRONMENTAL | 5.6 | 11.0 | 751 | USGS | VDCLS | 787 | 2.50 | 3.5 | 92 | 12.6 |
| 29... | 1110 | ENVIRONMENTAL | 4.8 | 3.0 | 759 | USGS | VDCLS | 673 | 2.55 | 5.0 | 97 | 12.8 |
| DEC | | | | | | | | | | | | |
| 13... | 1145 | ENVIRONMENTAL | 2.5 | .5 | 774 | USGS | VDCLS | 312 | 1.99 | 6.4 | 94 | 14.5 |
| 18... | 1210 | BLANK | -- | -- | -- | USGS | VDCLS | -- | -- | .2 | -- | -- |
| 18... | 1215 | ENVIRONMENTAL | 3.8 | .5 | 761 | USGS | VDCLS | 6960 | 4.38 | 200 | 88 | 13.4 |
| 21... | 1225 | BLANK | -- | -- | -- | USGS | VDCLS | -- | -- | -- | -- | -- |
| 21... | 1230 | ENVIRONMENTAL | 1.2 | -2.0 | 762 | USGS | VDCLS | 1490 | 3.27 | -- | 88 | 14.2 |
| JAN | | | | | | | | | | | | |
| 08... | 1130 | ENVIRONMENTAL | 1.0 | 3.0 | 751 | USGS | VDCLS | 576 | 2.22 | 4.7 | 91 | 13.3 |
| 22... | 1045 | ENVIRONMENTAL | 1.1 | -1.0 | 768 | USGS | VDCLS | 2590 | 3.14 | 36 | 109 | 13.6 |
| 29... | 1030 | ENVIRONMENTAL | 1.8 | 4.0 | 765 | USGS | VDCLS | 787 | 2.38 | 3.8 | 104 | 16.6 |
| FEB | | | | | | | | | | | | |
| 06... | 0945 | ENVIRONMENTAL | 2.7 | 2.0 | 758 | USGS | VDCLS | 920 | 2.45 | 5.7 | 101 | 13.0 |
| 27... | 1130 | ENVIRONMENTAL | 6.7 | 71.0 | 763 | USGS | VDCLS | 1110 | 3.02 | 14 | 109 | 12.9 |
| MAR | | | | | | | | | | | | |
| 19... | 1115 | ENVIRONMENTAL | 8.3 | 8.2 | 767 | USGS | VDCLS | 903 | 2.44 | 4.2 | 101 | 13.9 |
| 23... | 1030 | ENVIRONMENTAL | 7.8 | 10.0 | 751 | USGS | VDCLS | 7110 | 4.54 | 140 | 76 | 11.6 |
| 27... | 1100 | ENVIRONMENTAL | 7.0 | .5 | 763 | USGS | VDCLS | 2310 | 3.03 | 19 | 75 | 11.8 |
| 27... | 1115 | REPLICATE | 7.0 | .5 | 763 | USGS | VDCLS | 2280 | 3.03 | 16 | 75 | 11.8 |
| 30... | 0930 | ENVIRONMENTAL | 6.3 | 10.0 | 749 | USGS | VDCLS | 15600 | 7.96 | 320 | 77 | 11.8 |
| APR | | | | | | | | | | | | |
| 03... | 1130 | ENVIRONMENTAL | 8.8 | 10.5 | 759 | USGS | VDCLS | 3560 | 3.48 | 16 | 79 | 11.6 |
| 13... | 0945 | ENVIRONMENTAL | 16.1 | 22.0 | 753 | USGS | VDCLS | 2700 | 3.18 | 29 | 87 | 10.2 |
| 13... | 1000 | REPLICATE | 16.1 | 22.0 | 753 | USGS | VDCLS | 2700 | 3.18 | 21 | 87 | 10.2 |
| 23... | 0945 | ENVIRONMENTAL | 17.6 | 21.5 | 762 | USGS | VDCLS | 1280 | 2.63 | 4.1 | 81 | 9.8 |
| MAY | | | | | | | | | | | | |
| 09... | 1215 | ENVIRONMENTAL | 20.6 | 22.5 | 761 | USGS | VDCLS | 641 | 2.27 | 2.6 | 85 | 9.1 |
| 21... | 1115 | ENVIRONMENTAL | 16.8 | 16.0 | 755 | USGS | VDCLS | 1440 | 2.70 | 9.2 | 100 | 9.2 |
| 23... | 1030 | ENVIRONMENTAL | 17.8 | 20.0 | 752 | USGS | VDCLS | 10300 | 5.69 | 280 | 96 | 8.2 |
| 31... | 0900 | ENVIRONMENTAL | 18.9 | 14.5 | 760 | USGS | VDCLS | 1240 | 2.61 | 14 | 84 | 9.6 |
| JUN | | | | | | | | | | | | |
| 06... | 0900 | ENVIRONMENTAL | 22.7 | 22.0 | 757 | USGS | VDCLS | 2620 | 3.15 | 28 | 95 | 8.3 |
| 06... | 0905 | REPLICATE | 22.7 | 22.0 | 757 | USGS | USGS | 2620 | 3.15 | -- | 95 | 8.3 |
| 08... | 0930 | ENVIRONMENTAL | 21.7 | 20.0 | 755 | USGS | VDCLS | 2750 | 3.20 | 250 | 69 | 8.7 |
| 11... | 1000 | ENVIRONMENTAL | 23.0 | 22.1 | 754 | USGS | VDCLS | 1110 | 2.55 | 11 | 83 | 7.9 |
| 25... | 1015 | ENVIRONMENTAL | 23.2 | 24.0 | 759 | USGS | VDCLS | 1730 | 2.81 | 35 | 85 | 7.8 |
| 28... | 1015 | ENVIRONMENTAL | 27.4 | 27.0 | 762 | USGS | VDCLS | 803 | 2.38 | 5.9 | 84 | 7.2 |
| JUL | | | | | | | | | | | | |
| 09... | 1130 | ENVIRONMENTAL | 26.7 | 29.0 | 753 | USGS | VDCLS | 363 | 2.01 | 4.7 | 90 | 7.3 |
| 23... | 1000 | ENVIRONMENTAL | 26.7 | 24.0 | 757 | USGS | VDCLS | 196 | 1.78 | 4.0 | 106 | 6.9 |
| 30... | 0900 | ENVIRONMENTAL | 19.9 | 21.0 | 757 | USGS | VDCLS | 5760 | 4.22 | 230 | 99 | 8.0 |
| AUG | | | | | | | | | | | | |
| 07... | 1000 | ENVIRONMENTAL | 28.5 | 24.0 | 759 | USGS | VDCLS | 460 | 2.12 | 1.7 | 98 | 7.0 |
| 13... | 1140 | BLANK | -- | -- | -- | USGS | VDCLS | -- | -- | .3 | -- | -- |
| 13... | 1145 | ENVIRONMENTAL | 24.8 | 24.0 | 754 | USGS | VDCLS | 5090 | 3.96 | 220 | 70 | 7.1 |
| 20... | 0915 | ENVIRONMENTAL | 25.6 | 24.8 | 754 | USGS | VDCLS | 527 | 2.18 | 13 | 90 | 7.5 |
| SEP | | | | | | | | | | | | |
| 05... | 0925 | BLANK | -- | -- | -- | USGS | VDCLS | -- | -- | 1.7 | -- | -- |
| 05... | 0930 | ENVIRONMENTAL | 24.3 | 25.0 | 760 | USGS | VDCLS | 289 | 1.93 | 3.0 | 92 | 7.0 |
| 18... | 0815 | ENVIRONMENTAL | 19.7 | 15.0 | 756 | USGS | VDCLS | 150 | 1.70 | 5.5 | 103 | 9.4 |
| 25... | 1530 | ENVIRONMENTAL | 20.4 | 17.0 | 753 | USGS | VDCLS | 7080 | -- | 270 | 76 | 7.3 |

**01668000 RAPPAHANNOCK RIVER NEAR FREDERICSBURG, VA--Continued**

**WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

| DATE | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535) | RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540) | NITROGN TOTAL SEDIMNT SUSP TOTAL AS N (MG/L) (00601) | NITRO-GEN DIS-SOLVED (MG/L AS N) (00602) | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613) | NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618) | NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | | |
| 24... | 7.9 | <3 | <3 | <3 | .02 | .16 | <.004 | <.002 | .006 | -- | -- | .006 | -- |
| NOV | | | | | | | | | | | | | |
| 08... | 7.1 | <3 | <3 | <3 | .02 | .16 | <.004 | <.002 | .039 | -- | -- | .039 | -- |
| 27... | 7.0 | 8 | <3 | 7 | .04 | .31 | .005 | <.002 | .157 | -- | -- | .158 | -- |
| 29... | 7.2 | <3 | <3 | <3 | .04 | .65 | .006 | <.002 | .442 | -- | -- | .443 | -- |
| DEC | | | | | | | | | | | | | |
| 13... | 7.3 | <3 | <3 | <3 | .02 | .58 | .009 | <.002 | .428 | -- | -- | .428 | -- |
| 18... | -- | <3 | <3 | <3 | M | M | .005 | <.002 | <.004 | -- | -- | <.004 | -- |
| 18... | 7.3 | 269 | 38 | 231 | 1.2 | 1.5 | .147 | .005 | .841 | -- | -- | .846 | -- |
| 21... | -- | <3 | <3 | <3 | .01 | .01 | <.004 | <.002 | <.004 | -- | -- | <.004 | -- |
| 21... | 7.1 | 9 | <3 | 7 | .08 | 1.4 | .039 | .002 | .987 | -- | -- | .989 | -- |
| JAN | | | | | | | | | | | | | |
| 08... | 7.3 | 4 | <3 | <3 | .03 | 1.0 | .032 | <.002 | .845 | -- | -- | .846 | -- |
| 22... | 6.6 | 22 | 4 | 18 | .20 | 1.9 | .110 | .007 | .853 | -- | -- | .860 | -- |
| 29... | 7.5 | 3 | <3 | <3 | .04 | 1.1 | .025 | .002 | .937 | -- | -- | .939 | -- |
| FEB | | | | | | | | | | | | | |
| 06... | 7.4 | 3 | <3 | <3 | .04 | .81 | .010 | .002 | .702 | -- | -- | .704 | -- |
| 27... | 7.6 | 4 | <3 | 3 | .06 | .71 | .007 | .002 | .507 | -- | -- | .509 | -- |
| MAR | | | | | | | | | | | | | |
| 19... | 7.4 | 3 | <3 | <3 | .04 | .48 | <.004 | .002 | .295 | -- | -- | .297 | -- |
| 23... | 7.1 | 199 | 25 | 174 | .76 | 1.3 | .079 | .004 | .956 | -- | -- | .960 | -- |
| 27... | 6.9 | 15 | 5 | 10 | .08 | .92 | .010 | <.002 | .844 | -- | -- | .845 | -- |
| 27... | 6.9 | 15 | 3 | 12 | .08 | .89 | .014 | .002 | .836 | -- | -- | .836 | -- |
| 30... | 6.6 | 420 | 46 | 374 | 1.5 | 1.3 | .090 | .004 | .603 | -- | -- | .607 | -- |
| APR | | | | | | | | | | | | | |
| 03... | 6.9 | 28 | 5 | 23 | .12 | 1.0 | .020 | <.002 | .759 | -- | -- | .759 | -- |
| 13... | 7.3 | 32 | 5 | 27 | .16 | .74 | .013 | <.002 | .497 | -- | -- | .498 | -- |
| 13... | 7.3 | 32 | 5 | 27 | .16 | .76 | .017 | <.002 | .508 | -- | -- | .509 | -- |
| 23... | 6.2 | 5 | 3 | <3 | .05 | .41 | .008 | <.002 | .279 | -- | -- | .279 | -- |
| MAY | | | | | | | | | | | | | |
| 09... | 7.7 | <3 | <3 | <3 | .08 | .21 | .068 | <.002 | .010 | -- | -- | .010 | -- |
| 21... | 6.3 | 11 | 4 | 7 | .10 | .86 | .052 | .007 | .580 | -- | -- | .587 | -- |
| 23... | 7.0 | 343 | 52 | 291 | 1.5 | 1.7 | .287 | .027 | .949 | -- | -- | .976 | -- |
| 31... | 6.5 | 14 | 6 | 8 | -- | .85 | .009 | .004 | .579 | -- | -- | .583 | -- |
| JUN | | | | | | | | | | | | | |
| 06... | 6.9 | 36 | 7 | 29 | -- | .82 | .017 | .004 | .609 | -- | -- | .613 | -- |
| 06... | 6.9 | 16 | -- | -- | -- | .78 | .017 | -- | -- | .22 | .37 | .561 | .066 |
| 08... | 7.0 | 218 | 43 | 175 | .83 | 1.1 | .076 | .010 | .701 | -- | -- | .711 | -- |
| 11... | 7.4 | 9 | 3 | 6 | .07 | .85 | .015 | .002 | .598 | -- | -- | .600 | -- |
| 25... | 6.3 | 24 | 6 | 18 | .16 | .91 | .050 | .008 | .780 | -- | -- | .788 | -- |
| 28... | 7.2 | 5 | 3 | 3 | .07 | .74 | .008 | <.002 | .470 | -- | -- | .471 | -- |
| JUL | | | | | | | | | | | | | |
| 09... | 7.3 | 5 | 4 | 3 | .06 | .25 | .035 | .002 | .013 | -- | -- | .013 | -- |
| 23... | 7.5 | 4 | <3 | <3 | .03 | .52 | .009 | <.002 | .006 | -- | -- | .006 | -- |
| 30... | 7.0 | 233 | 38 | 195 | 1.1 | 2.0 | .150 | .015 | 1.03 | -- | -- | 1.05 | -- |
| AUG | | | | | | | | | | | | | |
| 07... | 8.4 | <3 | <3 | <3 | .03 | .26 | .006 | <.002 | .009 | -- | -- | .009 | -- |
| 13... | -- | 3 | 3 | 3 | .01 | .03 | .011 | .002 | .006 | -- | -- | .006 | -- |
| 13... | 7.8 | 179 | 29 | 150 | .72 | 1.2 | .140 | .012 | .496 | -- | -- | .508 | -- |
| 20... | 8.7 | 6 | 3 | 3 | .05 | .78 | .011 | <.002 | .439 | -- | -- | .440 | -- |
| SEP | | | | | | | | | | | | | |
| 05... | -- | 3 | 3 | 3 | .01 | .01 | .004 | .002 | .006 | -- | -- | .006 | -- |
| 05... | 6.8 | 3 | <3 | <3 | .03 | .20 | .007 | <.002 | .011 | -- | -- | .011 | -- |
| 18... | 7.2 | 8 | 3 | 5 | .05 | .17 | .008 | <.002 | .006 | -- | -- | .006 | -- |
| 25... | 6.6 | 754 | 86 | 668 | 3.0 | .98 | .057 | .006 | .419 | -- | -- | .425 | -- |

**01668000 RAPPAHANNOCK RIVER NEAR FREDERICSBURG, VA--Continued**

**WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

| DATE | PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666) | PHOS TOTAL SEDIMNT SUSP TOTAL AS P (MG/L) (00667) | PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671) | CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) | SILICA, DIS-SOLVED (MG/L AS SIO2) (00955) | SEDI-MENT, SUS-PENDED (MG/L) (80154) | DATA BASE NUMBER |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 24... | .003 | .006 | .004 | .2 | 5.1 | 4 | 01 |
| NOV | | | | | | | |
| 08... | .004 | .005 | .037 | .2 | 3.4 | 2 | 01 |
| 27... | .011 | .011 | <.002 | .4 | 7.3 | 30 | 01 |
| 29... | .012 | .011 | .002 | .3 | 9.1 | 3 | 01 |
| DEC | | | | | | | |
| 13... | .007 | .005 | .003 | .2 | 7.7 | M | 01 |
| 18... | .002 | .003 | <.002 | .1 | <.1 | -- | 02 |
| 18... | .070 | .454 | .032 | 11 | 6.8 | 286 | 01 |
| 21... | .003 | .003 | <.002 | .1 | <.1 | -- | 02 |
| 21... | .029 | .037 | .013 | .7 | 9.4 | 12 | 01 |
| JAN | | | | | | | |
| 08... | .015 | .010 | .008 | .3 | 11.8 | M | 01 |
| 22... | .066 | .074 | .025 | 1.3 | 8.4 | 30 | 01 |
| 29... | .018 | .020 | .009 | .3 | 8.0 | 3 | 01 |
| FEB | | | | | | | |
| 06... | .022 | .014 | .009 | .3 | 10.0 | 4 | 01 |
| 27... | .016 | .017 | .010 | .3 | 8.4 | 22 | 01 |
| MAR | | | | | | | |
| 19... | .010 | .012 | .007 | .2 | 7.0 | 4 | 01 |
| 23... | .036 | .208 | .012 | 6.7 | 8.2 | 211 | 01 |
| 27... | .026 | .035 | .009 | .6 | 10.1 | 15 | 01 |
| 27... | .017 | .035 | .009 | .5 | 11.0 | 17 | 02 |
| 30... | .083 | .325 | .039 | 13 | 7.0 | 614 | 01 |
| APR | | | | | | | |
| 03... | .031 | .049 | .013 | .9 | 10.2 | 29 | 01 |
| 13... | .030 | .053 | .013 | 1.2 | 9.3 | 34 | 01 |
| 13... | .035 | .052 | .013 | 1.2 | 9.4 | -- | 02 |
| 23... | .012 | .015 | .008 | .3 | 7.8 | 6 | 01 |
| MAY | | | | | | | |
| 09... | .022 | .010 | .028 | .6 | 2.2 | 2 | 01 |
| 21... | .013 | .026 | .010 | .8 | 8.2 | 11 | 01 |
| 23... | .084 | .404 | .057 | 13 | 7.8 | 440 | 01 |
| 31... | .032 | .025 | .014 | -- | 3.2 | 14 | 01 |
| JUN | | | | | | | |
| 06... | .040 | .046 | .012 | -- | 9.8 | 36 | 01 |
| 06... | <.060 | -- | .010 | -- | 10.4 | -- | 02 |
| 08... | .051 | .267 | .022 | 6.8 | 8.2 | 218 | 01 |
| 11... | .038 | .022 | .016 | .5 | 10.4 | 9 | 01 |
| 25... | .055 | .051 | .022 | 1.3 | 9.6 | 29 | 01 |
| 28... | .034 | .016 | .019 | .5 | 10.2 | 7 | 01 |
| JUL | | | | | | | |
| 09... | .018 | .009 | .009 | .4 | 6.4 | 5 | 01 |
| 23... | .025 | .010 | .006 | .2 | 5.4 | 6 | 01 |
| 30... | .080 | .242 | .059 | 8.8 | 6.9 | 269 | 01 |
| AUG | | | | | | | |
| 07... | .011 | .007 | .013 | .2 | 7.9 | 1 | 01 |
| 13... | .001 | .001 | .003 | M | .1 | -- | 02 |
| 13... | .063 | .260 | .029 | 5.7 | 6.4 | 209 | 01 |
| 20... | .031 | .014 | .026 | .4 | 9.9 | 4 | 01 |
| SEP | | | | | | | |
| 05... | .004 | M | .003 | .1 | .1 | -- | 02 |
| 05... | .022 | .008 | .011 | .3 | 6.6 | 4 | 01 |
| 18... | .014 | .014 | .007 | .5 | 4.5 | 8 | 01 |
| 25... | .034 | .855 | .009 | 28 | 5.1 | 891 | 01 |

Remark codes used in this report:
< -- Less than

Null value remark codes used in this report:
M -- Presence verified, not quantified

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