



2005 Water Year  
REDBANK CREEK BASIN  
03032500 Redbank Creek at St. Charles, PA

Latitude: 40° 59 ' 40"

Longitude: 079° 23 ' 40"

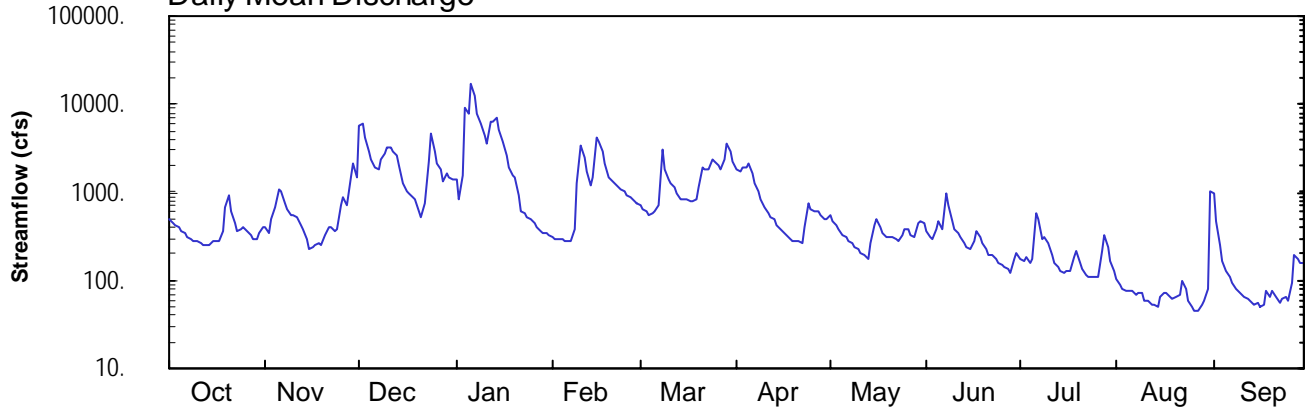
Hydrologic Unit Code: 05010006

Armstrong County

Datum: 973.14 feet

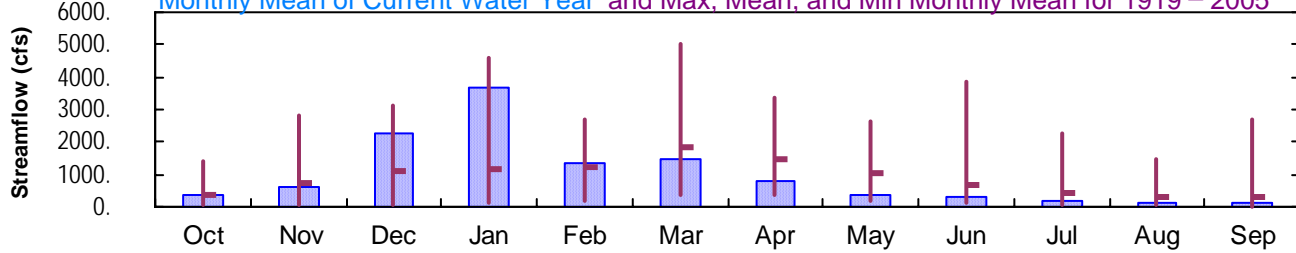
Drainage Area: 528. mi<sup>2</sup>

### Daily Mean Discharge

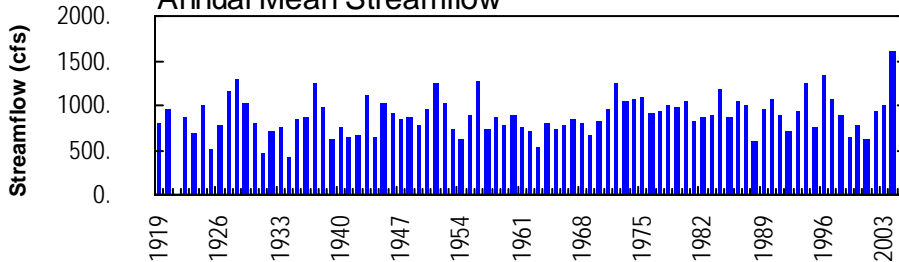


### Monthly Statistics

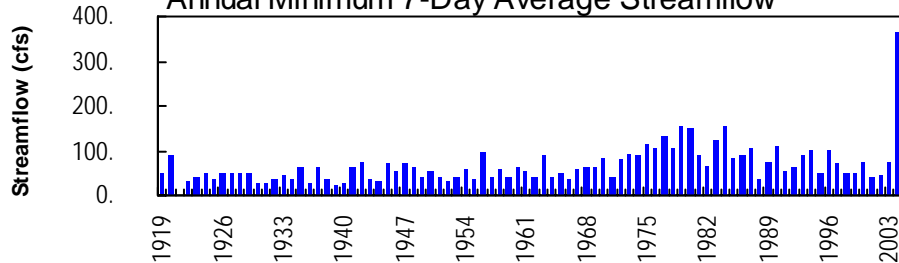
Monthly Mean of Current Water Year and Max, Mean, and Min Monthly Mean for 1919 – 2005



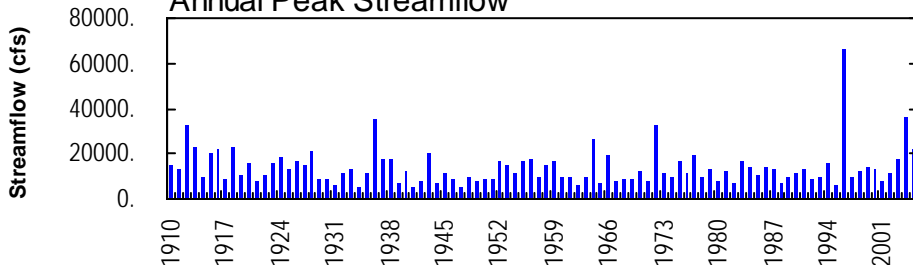
### Annual Mean Streamflow



### Annual Minimum 7-Day Average Streamflow



### Annual Peak Streamflow



## REDBANK CREEK BASIN

03032500 REDBANK CREEK AT ST. CHARLES, PA  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 40°59'40", long 79°23'40", Armstrong County, Hydrologic Unit 05010006, on left bank 400 ft downstream from highway bridge on SR 1005 at St. Charles, 0.3 mi downstream from Leatherwood Creek, and 3 mi west of New Bethlehem.

**DRAINAGE AREA.**--528 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--Annual maximums, water years 1910-18. October 1918 to current year. Monthly discharge only for some periods, published in WSP 1305. Figures of daily discharge for November 1920 to June 1921, published in WSP 523, are unreliable and should not be used.

**REVISED RECORDS.**--WSP 743: Drainage area. WSP 1385: 1919, 1936-39. WDR PA-72-1: 1923 (M), 1926 (M), 1928 (M), 1936, 1937 (M), 1938 (M), 1943, 1945 (P), 1952 (M), 1953 (M), 1955 (M), 1956 (P), 1958 (M), 1959 (M), 1964, 1966 (M). See also PERIOD OF RECORD.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 973.14 ft above National Geodetic Vertical Datum of 1929. Prior to July 10, 1940, nonrecording gage at site 500 ft upstream at datum 3.10 ft higher.

**REMARKS.**--Records fair except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemetry at station.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than a base discharge of 7,000 ft<sup>3</sup>/s and maximum (\*):

| Date   | Time | Discharge<br>ft <sup>3</sup> /s | Gage Height<br>(ft) | Date    | Time | Discharge<br>ft <sup>3</sup> /s | Gage Height<br>(ft) |
|--------|------|---------------------------------|---------------------|---------|------|---------------------------------|---------------------|
| Dec. 1 | 1815 | 10,500                          | 10.99               | Jan. 12 | 1800 | 8,190                           | 9.90                |
| Jan. 4 | 1015 | 11,300                          | 11.32               | Jan. 14 | 1230 | 8,480                           | 10.04               |
| Jan. 6 | 1745 | *21,900                         | *14.93              |         |      |                                 |                     |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN    | FEB   | MAR   | APR   | MAY   | JUN  | JUL  | AUG  | SEP  |
|-------|-------|-------|-------|--------|-------|-------|-------|-------|------|------|------|------|
| 1     | 485   | 394   | 5580  | 1380   | e310  | e703  | e1800 | 539   | 363  | 179  | 105  | 977  |
| 2     | 441   | 347   | 5920  | 828    | e298  | e646  | e1720 | 482   | 314  | 162  | 90   | 479  |
| 3     | 425   | 505   | 4200  | 1540   | e297  | e602  | e1960 | 419   | 299  | 182  | 80   | 249  |
| 4     | 409   | 665   | 2940  | 8900   | e289  | e559  | e1950 | 376   | 386  | 161  | 76   | 165  |
| 5     | 366   | 1060  | 2380  | 7700   | e276  | e574  | e2070 | 335   | 463  | 174  | 75   | 129  |
| 6     | 341   | 1010  | 1930  | 17500  | e280  | e595  | e1640 | 303   | 388  | 589  | 75   | 107  |
| 7     | 311   | 769   | 1800  | 12200  | e280  | e710  | e1260 | 282   | 971  | 508  | 70   | 92   |
| 8     | 297   | 648   | 2390  | 7850   | e374  | 3060  | e1040 | 267   | 695  | 295  | 72   | 82   |
| 9     | 285   | 559   | 2720  | 6140   | 1240  | e1780 | e820  | 244   | 480  | 311  | 73   | 75   |
| 10    | 275   | e539  | 3220  | 4500   | 3480  | e1410 | e668  | 223   | 383  | 268  | 59   | 69   |
| 11    | 265   | e515  | 3290  | 3630   | 2420  | e1280 | e593  | 206   | 342  | 196  | 57   | 66   |
| 12    | 256   | 433   | 2960  | 6410   | 1740  | e1160 | e534  | 190   | 305  | 161  | 54   | 62   |
| 13    | 250   | 389   | 2630  | 6260   | 1180  | e987  | e490  | 171   | 270  | 140  | 53   | 58   |
| 14    | 253   | 294   | 2050  | 7160   | 1470  | e818  | e429  | 260   | 245  | 127  | 51   | 53   |
| 15    | e279  | 232   | 1240  | 5210   | 4200  | e850  | e389  | 424   | 227  | 119  | 65   | 56   |
| 16    | e282  | 242   | 1050  | 3750   | 3690  | e813  | e359  | 485   | 277  | 130  | 71   | 51   |
| 17    | e282  | e250  | 977   | 2600   | 2950  | e796  | 324   | 400   | 355  | 127  | 72   | 53   |
| 18    | e354  | e264  | 877   | 1970   | 2100  | e784  | 297   | 340   | 306  | 184  | 66   | 75   |
| 19    | 686   | e257  | 844   | 1570   | 1500  | e850  | 281   | 308   | 265  | 215  | 62   | 65   |
| 20    | 902   | e323  | 613   | 1450   | 1330  | 1120  | 277   | 314   | 224  | 157  | 66   | 76   |
| 21    | 598   | 410   | 530   | 935    | e1250 | e1920 | 286   | 315   | 198  | 137  | 67   | 65   |
| 22    | 439   | 406   | 755   | 623    | e1170 | 1810  | 266   | 295   | 195  | 118  | 101  | 56   |
| 23    | 363   | 371   | 2240  | 568    | e1100 | 1830  | 407   | 283   | 177  | 107  | 81   | 61   |
| 24    | 375   | 383   | 4670  | 529    | e1030 | 2390  | 746   | 322   | 159  | 108  | 60   | 64   |
| 25    | 406   | 714   | 2840  | e497   | e934  | 2230  | 646   | 390   | 147  | 110  | 50   | 58   |
| 26    | 358   | 876   | 2150  | e446   | e880  | 1990  | 619   | 377   | 140  | e108 | 46   | 94   |
| 27    | 321   | 710   | 1850  | e394   | e782  | 1770  | 597   | 334   | 132  | e218 | 45   | 191  |
| 28    | 294   | 1500  | 1350  | e355   | e753  | 2400  | 544   | 312   | 122  | 326  | 54   | 174  |
| 29    | 291   | 2090  | 1630  | e336   | ---   | 3610  | 497   | 438   | 178  | 234  | 58   | 155  |
| 30    | 343   | 1450  | 1510  | e336   | ---   | 2980  | 492   | 459   | 204  | 167  | 80   | 160  |
| 31    | 393   | ---   | 1390  | e323   | ---   | 2290  | ---   | 458   | ---  | 129  | 1040 | ---  |
| TOTAL | 11625 | 18605 | 70526 | 113890 | 37603 | 45317 | 24001 | 10551 | 9210 | 6147 | 3074 | 4117 |
| MEAN  | 375   | 620   | 2275  | 3674   | 1343  | 1462  | 800   | 340   | 307  | 198  | 99.2 | 137  |
| MAX   | 902   | 2090  | 5920  | 17500  | 4200  | 3610  | 2070  | 539   | 971  | 589  | 1040 | 977  |
| MIN   | 250   | 232   | 530   | 323    | 276   | 559   | 266   | 171   | 122  | 107  | 45   | 51   |
| CFSM  | 0.71  | 1.17  | 4.31  | 6.96   | 2.54  | 2.77  | 1.52  | 0.64  | 0.58 | 0.38 | 0.19 | 0.26 |
| IN.   | 0.82  | 1.31  | 4.97  | 8.02   | 2.65  | 3.19  | 1.69  | 0.74  | 0.65 | 0.43 | 0.22 | 0.29 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2005, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 378  | 749  | 1093 | 1163 | 1204 | 1809 | 1497 | 1067 | 687  | 426  | 294  | 322  |
| MAX  | 1385 | 2806 | 3151 | 4616 | 2707 | 5016 | 3337 | 2603 | 3887 | 2238 | 1498 | 2718 |
| (WY) | 1927 | 1922 | 1928 | 1937 | 1990 | 1936 | 1940 | 1919 | 1972 | 1996 | 1956 | 2004 |
| MIN  | 40.3 | 50.9 | 75.9 | 96.8 | 179  | 358  | 367  | 180  | 123  | 61.1 | 33.5 | 29.2 |
| (WY) | 1931 | 1931 | 1961 | 1931 | 1934 | 1969 | 1925 | 1926 | 1936 | 1966 | 1930 | 1939 |

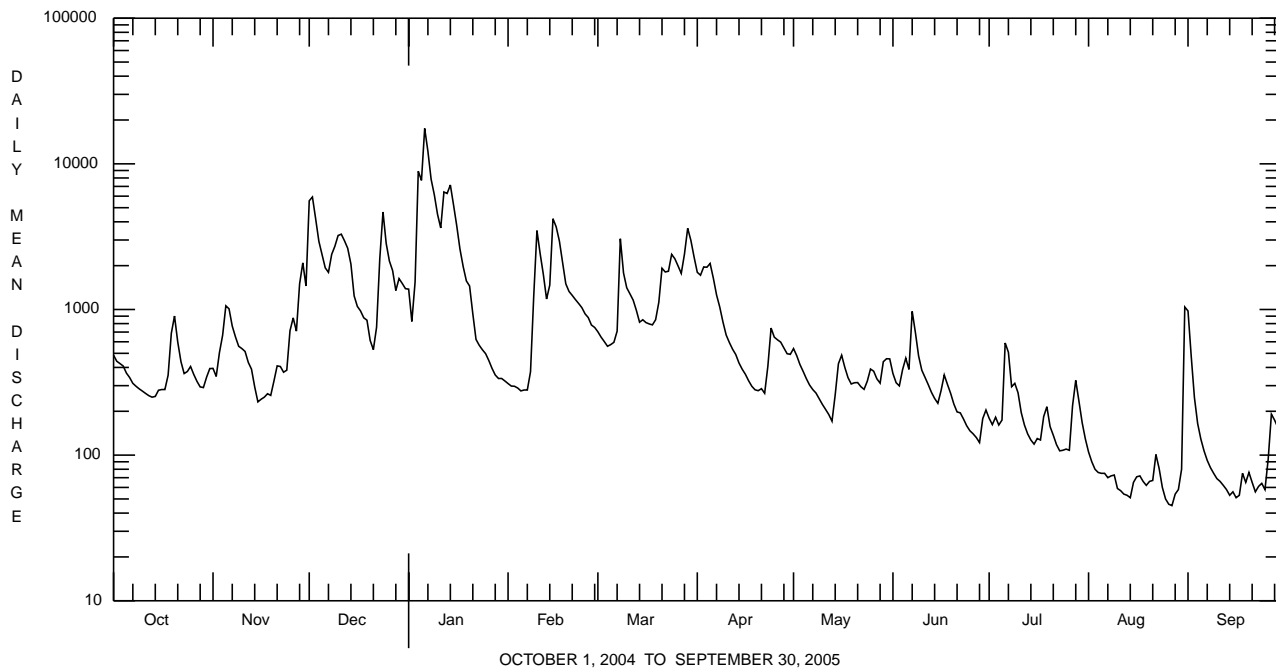
e Estimated.

REDBANK CREEK BASIN

03032500 REDBANK CREEK AT ST. CHARLES, PA--Continued

| SUMMARY STATISTICS       | FOR 2004 CALENDAR YEAR |        | FOR 2005 WATER YEAR |        | WATER YEARS 1919 - 2005 |             |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|-------------|
| ANNUAL TOTAL             | 563598                 |        | 354666              |        |                         |             |
| ANNUAL MEAN              | 1540                   |        | 972                 |        | 889                     |             |
| HIGHEST ANNUAL MEAN      |                        |        |                     |        | 1607                    | 2004        |
| LOWEST ANNUAL MEAN       |                        |        |                     |        | 430                     | 1934        |
| HIGHEST DAILY MEAN       | 24700                  | Sep 18 | 17500               | Jan 6  | 28100                   | Jul 19 1996 |
| LOWEST DAILY MEAN        | 232                    | Nov 15 | 45                  | Aug 27 | 20                      | Sep 28 1922 |
| ANNUAL SEVEN-DAY MINIMUM | <b>a</b> 266           | Oct 10 | 56                  | Aug 24 | 24                      | Aug 30 1939 |
| MAXIMUM PEAK FLOW        |                        |        | 21900               | Jan 6  | <b>b</b> 66300          | Jul 19 1996 |
| MAXIMUM PEAK STAGE       |                        |        | 14.93               | Jan 6  | <b>c</b> 23.90          | Jul 19 1996 |
| INSTANTANEOUS LOW FLOW   |                        |        | 43                  | Aug 27 | <b>d</b> 19             | Oct 1 1918  |
| ANNUAL RUNOFF (CFSM)     | 2.92                   |        | 1.84                |        | 1.68                    |             |
| ANNUAL RUNOFF (INCHES)   | 39.71                  |        | 24.99               |        | 22.87                   |             |
| 10 PERCENT EXCEEDS       | 3380                   |        | 2380                |        | 2120                    |             |
| 50 PERCENT EXCEEDS       | 855                    |        | 386                 |        | 468                     |             |
| 90 PERCENT EXCEEDS       | 357                    |        | 75                  |        | 84                      |             |

- a** Computed using estimated daily discharges.
- b** From rating curve extended above 35,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.
- c** From floodmarks.
- d** Minimum observed.



## REDBANK CREEK BASIN

03032500 REDBANK CREEK AT ST. CHARLES, PA--Continued  
(Pennsylvania Water-Quality Network Station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

| Date           | Time | Agency collecting sample, code (00027) | Agency analyzing sample, code (00028) | Instantaneous discharge, cfs (00061) | Dissolved oxygen, mg/L (00300) | pH, water, unfltrd field, std units (00400) | pH, water, unfltrd lab, std units (00403) | Specif. conductance, wat unfltrd lab, µS/cm 25 degC (90095) | Specif. conductance, wat unfltrd lab, µS/cm 25 degC (00095) | Temperature, water, deg C (00010) | Hardness, water, mg/L as CaCO3 (00900) | Calcium, water, unfltrd recover-able, mg/L (00916) | Magnesium, water, unfltrd recover-able, mg/L (00927) |
|----------------|------|--|---------------------------------------|--------------------------------------|--------------------------------|---|---|---|---|-----------------------------------|--|--|--|
| NOV 2004 18... | 0830 | 1028                                   | 9813                                  | E260                                 | 11.3                           | 7.3   | 7.4                                       | 391   | 394   | 6.5                               | 160                                    | 36.8   | 15.2   |
| JAN 2005 13... | 1345 | 1028                                   | 9813                                  | 6100                                 | 12.3                           | 6.8   | 7.4                                       | 184   | 188   | 6.0                               | 67                                     | 16.2   | 6.4  |
| MAR 21...      | 1045 | 1028                                   | 9813                                  | E1900                                | 13.0                           | 6.8   | 7.4                                       | 288   | 291   | 3.7                               | 95                                     | 23.6   | 8.8  |
| MAY 19...      | 1030 | 1028                                   | 9813                                  | 310                                  | 8.7                            | 7.4   | 7.6                                       | 395   | 399   | 15.4                              | 170                                    | 39.0   | 16.7   |
| JUL 21...      | 1100 | 1028                                   | 9813                                  | 140                                  | 7.6                            | 7.7   | 8.0                                       | 397   | 405   | 25.5                              | 150                                    | 38.1   | 13.7   |
| SEP 22...      | 1030 | 1028                                   | 9813                                  | 56.2                                 | 8.6                            | 7.7   | 7.0                                       | 582   | 594   | 19.0                              | 200                                    | 51.7   | 18.3   |

| Date           | ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417) | Sulfate water, fltrd, mg/L (00945) | Residue on evap. at 105degC, wat flt mg/L (00515) | Residue total at 105 deg. C, suspended, mg/L (00530) | Ammonia water, unfltrd as N mg/L (00610) | Nitrate water, unfltrd as N mg/L (00620) | Nitrite water, unfltrd as N mg/L (00615) | Ortho-phosphate, water, unfltrd as P mg/L (70507) | Phosphorus, unfltrd mg/L (00665) | Total nitrogen, unfltrd mg/L (00600) | Organic carbon, unfltrd mg/L (00680) | Aluminum, water, unfltrd recover-able, µg/L (01105) | Copper, water, unfltrd recover-able, µg/L (01042) |
|----------------|---|------------------------------------|---|--|--|--|--|---|----------------------------------|--------------------------------------|--------------------------------------|---|---|
| NOV 2004 18... | 29  | 122                                | 316   | 4  | <.020                                    | .43                                      | <.040                                    | <.01  | .013                             | .52                                  | 1.3                                  | <200  | <10   |
| JAN 2005 13... | 14  | 55.0                               | 140   | 4  | <.020                                    | .58                                      | <.040                                    | .03   | .024                             | .66                                  | 1.8                                  | 760   | <10   |
| MAR 21...      | 16  | 76.4                               | 240   | 22   | .040                                     | .66                                      | <.040                                    | .03   | .039                             | 1.4                                  | 1.7                                  | 1000  | <10   |
| MAY 19...      | 27  | 132                                | 260   | 2  | .040                                     | .34                                      | <.040                                    | <.01  | <.010                            | .53                                  | --                                   | <200  | <10   |
| JUL 21...      | 42  | 107                                | 306   | 20   | .030                                     | .20                                      | <.040                                    | .03   | .014                             | .27                                  | --                                   | 600   | <10   |
| SEP 22...      | 53  | 172                                | 476   | 4  | <.020                                    | .22                                      | <.040                                    | <.01  | <.010                            | .30                                  | --                                   | <200  | <10   |

| Date           | Iron, water, unfltrd recover-able, µg/L (01045) | Lead, water, unfltrd recover-able, µg/L (01051) | Manganese, water, unfltrd recover-able, µg/L (01055) | Nickel, water, unfltrd recover-able, µg/L (01067) | Zinc, water, unfltrd recover-able, µg/L (01092) |
|----------------|---|---|--|---|---|
| NOV 2004 18... | 340   | <1.0  | 330  | <50   | <10   |
| JAN 2005 13... | 1260  | 1.1   | 360  | <50   | 30  |
| MAR 21...      | 1910  | <1.0  | 440  | <50   | 20  |
| MAY 19...      | 350   | <1.0  | 90   | <50   | <10   |
| JUL 21...      | 320   | <1.0  | 70   | <50   | 20  |
| SEP 22...      | 110   | <1.0  | 40   | <50   | 10  |

## REDBANK CREEK BASIN

## 03032500 REDBANK CREEK AT ST. CHARLES, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

| Date                                    | 08/12/04 |
|---|----------|
| Benthic macroinvertebrate               | Count    |
| Mollusca                                |          |
| Gastropoda (SNAILS)                     |          |
| Basommatophora                          |          |
| Ancylidae                               |          |
| <i>Ferrissia</i>                        | 2        |
| Annelida                                |          |
| Oligochaeta (AQUATIC EARTHWORMS)        |          |
| Tubificida                              |          |
| Naididae                                | 1        |
| Arthropoda                              |          |
| Insecta                                 |          |
| Ephemeroptera (MAYFLIES)                |          |
| Baetidae                                | 6        |
| <i>Acentrella</i>                       | 10       |
| <i>Baetis</i>                           | 14       |
| <i>Heterocloeon</i>                     | 13       |
| Heptageniidae                           |          |
| <i>Stenonema</i>                        | 7        |
| Isonychiidae                            |          |
| <i>Isonychia</i>                        | 11       |
| Plecoptera (STONEFLIES)                 |          |
| Perlidae                                |          |
| <i>Acroneuria</i>                       | 1        |
| Megaloptera                             |          |
| Corydalidae (FISHFLIES AND DOBSONFLIES) |          |
| <i>Chauliodes</i>                       | 2        |
| Trichoptera (CADDISFLIES)               |          |
| Brachycentridae                         |          |
| <i>Brachycentrus</i>                    | 10       |
| Hydropsychidae                          | 2        |
| <i>Cheumatopsyche</i>                   | 1        |
| <i>Hydropsyche</i>                      | 62       |
| Coleoptera (BEETLES)                    |          |
| Elmidae (RIFFLE BEETLES)                |          |
| <i>Optioservus</i>                      | 1        |
| Diptera (TRUE FLIES)                    |          |
| Chironomidae (MIDGES)                   | 7        |
| Tipulidae (CRANE FLIES)                 |          |
| <i>Antocha</i>                          | 1        |
| Total Organisms                         | 151      |
| Total Taxa                              | 17       |