

Water-Data Report 2007

**05341764 VALLEY BRANCH NEAR AFTON, MN - STATION 3**

St. Croix Basin  
Lower St. Croix Subbasin

LOCATION.--Lat 44°54'57", long 92°47'10" referenced to North American Datum of 1983, Washington County, MN, Hydrologic Unit 07030005, about one mile west of Highway 95 on Putnam Blvd. S. near Afton. Gage is located upstream of abandoned bridge on the right bank about 150 feet.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--Water years 2007 to current year.

GAGE.--August 2007 to current year.

REMARKS.--Gage-height records considered good.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 5.44, September 20, 2007; minimum gage height, 4.92, September 15, 2007.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.44, September 20; minimum gage height, 4.92, September 15.

05341764 VALLEY BRANCH NEAR AFTON, MN - STATION 3—Continued

GAGE HEIGHT, FEET  
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

| Day   | Max     | Min | Mean | Max      | Min | Mean | Max      | Min | Mean | Max     | Min | Mean |
|-------|---------|-----|------|----------|-----|------|----------|-----|------|---------|-----|------|
|       | October |     |      | November |     |      | December |     |      | January |     |      |
| 1     | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 2     | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 3     | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 4     | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 5     | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 6     | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 7     | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 8     | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 9     | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 10    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 11    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 12    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 13    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 14    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 15    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 16    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 17    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 18    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 19    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 20    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 21    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 22    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 23    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 24    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 25    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 26    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 27    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 28    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 29    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 30    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| 31    | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |
| Month | ---     | --- | ---  | ---      | --- | ---  | ---      | --- | ---  | ---     | --- | ---  |

05341764 VALLEY BRANCH NEAR AFTON, MN - STATION 3—Continued

GAGE HEIGHT, FEET  
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

| Day   | Max      | Min | Mean | Max   | Min | Mean | Max   | Min | Mean | Max | Min | Mean |
|-------|----------|-----|------|-------|-----|------|-------|-----|------|-----|-----|------|
|       | February |     |      | March |     |      | April |     |      | May |     |      |
| 1     | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 2     | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 3     | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 4     | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 5     | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 6     | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 7     | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 8     | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 9     | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 10    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 11    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 12    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 13    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 14    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 15    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 16    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 17    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 18    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 19    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 20    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 21    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 22    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 23    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 24    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 25    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 26    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 27    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 28    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 29    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 30    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| 31    | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |
| Month | ---      | --- | ---  | ---   | --- | ---  | ---   | --- | ---  | --- | --- | ---  |

05341764 VALLEY BRANCH NEAR AFTON, MN - STATION 3—Continued

GAGE HEIGHT, FEET  
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

| Day   | Max  | Min | Mean | Max  | Min | Mean | Max    | Min  | Mean | Max       | Min  | Mean |
|-------|------|-----|------|------|-----|------|--------|------|------|-----------|------|------|
|       | June |     |      | July |     |      | August |      |      | September |      |      |
| 1     | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.01      | 4.95 | 4.97 |
| 2     | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.98      | 4.94 | 4.96 |
| 3     | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.99      | 4.94 | 4.96 |
| 4     | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.99      | 4.94 | 4.97 |
| 5     | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.99      | 4.93 | 4.96 |
| 6     | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.98      | 4.93 | 4.95 |
| 7     | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.99      | 4.96 | 4.98 |
| 8     | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.98      | 4.93 | 4.96 |
| 9     | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.98      | 4.96 | 4.97 |
| 10    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.98      | 4.93 | 4.96 |
| 11    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.97      | 4.93 | 4.95 |
| 12    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.97      | 4.93 | 4.95 |
| 13    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.98      | 4.93 | 4.96 |
| 14    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.97      | 4.94 | 4.96 |
| 15    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.97      | 4.92 | 4.95 |
| 16    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.96      | 4.93 | 4.95 |
| 17    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 4.96      | 4.93 | 4.95 |
| 18    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.18      | 4.93 | 5.00 |
| 19    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.05      | 4.99 | 5.01 |
| 20    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.44      | 4.95 | 5.05 |
| 21    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.14      | 4.99 | 5.03 |
| 22    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.03      | 4.97 | 5.00 |
| 23    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.02      | 4.96 | 4.99 |
| 24    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.01      | 4.96 | 4.98 |
| 25    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.03      | 4.96 | 4.99 |
| 26    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.02      | 4.98 | 5.00 |
| 27    | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.07      | 4.97 | 5.03 |
| 28    | ---  | --- | ---  | ---  | --- | ---  | 5.14   | 4.99 | 5.05 | 5.06      | 4.97 | 5.04 |
| 29    | ---  | --- | ---  | ---  | --- | ---  | 5.05   | 5.00 | 5.02 | 5.05      | 5.00 | 5.03 |
| 30    | ---  | --- | ---  | ---  | --- | ---  | 5.04   | 4.96 | 5.00 | 5.12      | 5.03 | 5.07 |
| 31    | ---  | --- | ---  | ---  | --- | ---  | 5.01   | 4.94 | 4.98 | ---       | ---  | ---  |
| Month | ---  | --- | ---  | ---  | --- | ---  | ---    | ---  | ---  | 5.44      | 4.92 | 4.98 |

**05341764 VALLEY BRANCH NEAR AFTON, MN - STATION 3—Continued**

THE RETRIEVED PLOT DATA CONSIST ENTIRELY OF MISSING  
VALUES OR, IN THE CASE OF A LOG PLOT, OF NEGATIVE AND  
ZERO VALUES



## 05341764 VALLEY BRANCH NEAR AFTON, MN - STATION 3—Continued

## WATER-QUALITY RECORDS

REMARKS.--Upper Mississippi River Basin nutrient enrichment (NEET) study sampling site. The objectives of this study are to determine the transport, chemical transformation, and retention of nutrients in the water column and surrounding sediments, and resulting effects on biological communities in stream reaches. Such cycling differs in different geologic and hydrologic settings, and is controlled, in large part, by ground-water and surface-water interactions. The study will be conducted from 2006 to 2009.

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**

Part 1 of 4

[Remark codes: &lt;, less than; E, estimated.]

| Date  | Time | Sample type   | Gage height, feet (00065) | Instantaneous discharge, cfs (00061) | Stream velocity, ft/s (00055) | Velocity at point in stream, ft/s (81904) | Stream width, feet (00004) | Turbidity, water, unfltrd field, NTU (61028) | Barometric pressure, mm Hg (00025) | Dissolved oxygen, mg/L (00300) | Dissolved oxygen, percent of saturation (00301) | pH, water, unfltrd field, std units (00400) |
|-------|------|---------------|---------------------------|--------------------------------------|-------------------------------|---|----------------------------|--|------------------------------------|--------------------------------|---|---|
| Jun   |      |               |                           |                                      |                               |   |                            |  |                                    |                                |   |   |
| 28... | 1000 | Environmental | 4.55                      | 11                                   | --                            | .98                                       | 11.0                       | --   | 743                                | 12.5                           | 124   | 7.9   |
| Aug   |      |               |                           |                                      |                               |   |                            |  |                                    |                                |   |   |
| 22... | 1055 | Environmental | 4.98                      | 13                                   | 1.00                          | --  | --                         | 2.6  | 738                                | 10.0                           | 96  | 8.0   |
| 22... | 1055 | Plant tissue  | --                        | --                                   | --                            | --  | --                         | --   | --                                 | 10.0                           | --  | 8.0   |
| 22... | 1056 | Plant tissue  | --                        | --                                   | --                            | --  | --                         | --   | --                                 | 10.0                           | --  | 8.0   |

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**

Part 2 of 4

[Remark codes: &lt;, less than; E, estimated.]

| Date  | Specific conductance, $\mu$ S/cm 25 degC (00095) | Temperature, air, deg C (00020) | Temperature, water, deg C (00010) | Alkalinity, wat flt inc tit mg/L as CaCO3 (39086) | Bicarbonate, wat flt incrm. titr., field, mg/L (00453) | Carbonate, wat flt incrm. titr., field, mg/L (00452) | Ammonia, water, fltrd, mg/L as N (00608) | Nitrate + nitrite, water, fltrd, mg/L as N (00631) | Nitrite, water, fltrd, mg/L as N (00613) | Particulate nitrogen, susp, water, mg/L (49570) | Total nitrogen, wat unfltrd, mg/L (62855) | Orthophosphate, water, fltrd, mg/L as P (00671) | Phosphorus, water, unfltrd, mg/L (00665) |
|-------|--|---------------------------------|-----------------------------------|---|--|--|--|--|--|---|---|---|--|
| Jun   |  |                                 |                                   |   |  |  |  |  |  |   |   |   |  |
| 28... | 516  | 19.5                            | 13.6                              | --  | --   | --   | <.020                                    | 5.99   | .018                                     | --  | 6.01                                      | .011  | .026                                     |
| Aug   |  |                                 |                                   |   |  |  |  |  |  |   |   |   |  |
| 22... | 519  | 21.0                            | 13.5                              | 213   | 260  | .0   | E.019                                    | --   | .014                                     | .05   | 5.53                                      | .017  | .026                                     |
| 22... | 519  | --                              | 13.5                              | --  | --   | --   | --                                       | --   | --                                       | --  | --  | --  | --                                       |
| 22... | 519  | --                              | 13.5                              | --  | --   | --   | --                                       | --   | --                                       | --  | --  | --  | --                                       |

## 05341764 VALLEY BRANCH NEAR AFTON, MN - STATION 3—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**

Part 3 of 4

[Remark codes: &lt;, less than; E, estimated.]

| Date      | Total carbon, suspnd sedimnt total, mg/L (00694) | Inorganic carbon, suspnd sedimnt total, mg/L (00688) | Organic carbon, suspnd sedimnt total, mg/L (00689) | Organic carbon, water, fltrd, mg/L (00681) | Biomass phyton, ashfree drymass g/m2 (49954) | Biomass phyton, ashfree DTH, g/m2 (63766) | Biomass phyton, ash weight, g/m2 (63765) | Periphyton biomass ash weight, g/m2 (00572) | Biomass phyton, dry weight, g/m2 (63767) | Periphyton biomass dry weight, g/m2 (00573) | Chlorophyll a phyton, chromo-fluoro, mg/m2 (70957) | Chlorophyll a phyton, DTH, CF meth mg/m2 (63763) | Chlorophyll a phyto-plankton, fluoro, µg/L (70953) |
|-----------|--|--|--|--|--|---|--|---|--|---|--|--|--|
| Jun 28... | --   | --   | --   | --   | --   | --  | --                                       | --  | --                                       | --  | --   | --   | --   |
| Aug 22... | .5   | <.1  | .5   | 1.3  | --   | --  | --                                       | --  | --                                       | --  | --   | --   | 1.1  |
| 22...     | --   | --   | --   | --   | <7.9   | --  | --                                       | 350   | --                                       | 356.8                                       | 3.5  | --   | --   |
| 22...     | --   | --   | --   | --   | --   | 63.0                                      | 1,530                                    | --  | 1,600                                    | --  | --   | 21.3   | --   |

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**

Part 4 of 4

[Remark codes: &lt;, less than; E, estimated.]

| Date      | Pheo-phytn a phyton, DTH, CF meth mg/m2 (63764) | Pheo-phytin a, phyton, mg/m2 (62359) | Pheo-phytin a, phyto-plankton, µg/L (62360) | Number of sampling points, count (00063) |
|-----------|---|--------------------------------------|---|--|
| Jun 28... | --  | --                                   | --  | 10                                       |
| Aug 22... | --  | --                                   | 1.7   | 10                                       |
| 22...     | --  | 1.6                                  | --  | --                                       |
| 22...     | 31.5  | --                                   | --  | --                                       |