



Water-Data Report 2011

**0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC**

Neuse Basin  
Upper Neuse Subbasin

LOCATION.--Lat 36°07'55", long 78°50'00" referenced to North American Datum of 1983, Durham County, NC, Hydrologic Unit 03020201, on left bank at culvert on Secondary Road 1680, 1.5 mi southeast of Willardville.

DRAINAGE AREA.--1.14 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--March 1988 to September 1990, October 1994 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 270 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Maximum discharge for period of record, from rating curve extended above 70 ft<sup>3</sup>/s, on basis of computation of flow through culvert with road overflow. Maximum gage height for period of record from floodmarks. No flow occurs many days most years.

**0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued**

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**  
**DAILY MEAN VALUES**

<b>Day</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>
<b>1</b>	0.27	0.09	0.15	0.15	0.09	0.68	1.2	0.22	0.19	0.00	0.00	0.00
<b>2</b>	0.08	0.09	0.03	0.24	0.16	0.32	0.80	0.21	0.17	0.00	0.00	0.00
<b>3</b>	0.07	0.11	0.02	0.21	0.11	0.22	0.62	0.20	0.14	0.00	0.00	0.00
<b>4</b>	0.09	0.33	0.02	0.19	0.13	0.16	0.57	0.69	0.10	0.00	0.00	0.00
<b>5</b>	0.10	0.14	0.03	0.17	1.7	0.16	0.60	0.35	0.13	0.00	0.00	0.00
<b>6</b>	0.07	0.09	0.02	0.18	0.69	0.23	0.49	0.27	0.12	0.00	0.00	0.24
<b>7</b>	0.09	0.13	0.02	0.15	0.36	0.38	0.45	0.34	0.10	0.00	0.00	4.4
<b>8</b>	0.09	0.17	0.01	0.13	0.26	0.25	0.42	0.31	0.12	0.00	0.00	0.11
<b>9</b>	0.09	0.19	0.01	0.09	0.15	0.23	0.45	0.27	0.11	0.12	0.00	0.01
<b>10</b>	0.09	0.19	0.01	0.09	0.13	0.87	1.3	0.22	0.19	0.02	0.00	0.00
<b>11</b>	0.11	0.19	0.02	0.11	0.09	1.0	0.85	0.27	0.38	0.00	0.00	0.00
<b>12</b>	0.11	0.18	0.06	0.10	0.08	0.52	0.66	0.22	0.32	0.00	0.00	0.00
<b>13</b>	0.13	0.19	0.05	0.09	0.08	0.39	0.52	0.23	0.27	0.00	0.07	0.00
<b>14</b>	0.24	0.20	0.02	0.08	0.10	0.31	0.43	0.46	0.18	0.00	0.01	0.00
<b>15</b>	0.11	0.21	0.02	0.09	0.09	0.26	0.39	0.45	0.15	0.00	0.00	0.00
<b>16</b>	0.09	0.23	0.13	0.10	0.08	0.37	3.2	0.32	0.13	0.00	0.00	0.00
<b>17</b>	0.08	0.23	0.23	0.10	0.11	0.31	2.3	0.28	0.11	0.00	0.00	0.00
<b>18</b>	0.10	0.02	0.19	0.13	0.14	0.28	0.98	0.25	0.10	0.00	0.00	0.00
<b>19</b>	0.12	0.01	0.16	0.13	0.13	0.25	0.68	0.21	0.08	0.00	0.00	0.00
<b>20</b>	0.14	0.01	0.13	0.11	0.11	0.21	0.54	0.19	0.05	0.00	0.00	0.00
<b>21</b>	0.17	0.01	0.11	0.11	0.15	0.21	0.44	0.18	0.00	0.00	0.00	0.00
<b>22</b>	0.11	0.01	0.13	0.09	0.14	0.23	0.43	0.16	0.00	0.00	0.00	0.00
<b>23</b>	0.09	0.02	0.11	0.07	0.11	0.23	0.48	0.40	0.00	0.00	0.00	0.00
<b>24</b>	0.11	0.02	0.09	0.07	0.11	2.1	0.42	0.24	0.00	0.00	0.00	0.00
<b>25</b>	0.15	0.02	0.10	0.08	0.10	0.71	0.35	0.20	0.00	0.00	0.00	0.00
<b>26</b>	0.30	0.02	0.14	0.30	0.08	0.49	0.33	0.18	0.00	0.00	0.00	0.00
<b>27</b>	0.15	0.02	0.12	0.34	0.11	1.4	0.33	1.2	0.00	0.00	0.00	0.00
<b>28</b>	0.23	0.01	0.09	0.24	0.21	0.82	0.34	0.97	0.06	0.00	0.00	0.02
<b>29</b>	0.14	0.01	0.11	0.17	---	0.55	0.27	0.42	0.43	0.00	0.00	0.00
<b>30</b>	0.09	0.02	0.13	0.14	---	5.2	0.23	0.29	0.11	0.00	0.00	0.00
<b>31</b>	0.11	---	0.13	0.10	---	2.4	---	0.23	---	0.00	0.00	---
<b>Total</b>	3.92	3.16	2.59	4.35	5.80	21.74	21.07	10.43	3.74	0.14	0.08	4.78
<b>Mean</b>	0.13	0.11	0.08	0.14	0.21	0.70	0.70	0.34	0.12	0.00	0.00	0.16
<b>Max</b>	0.30	0.33	0.23	0.34	1.7	5.2	3.2	1.2	0.43	0.12	0.07	4.4
<b>Min</b>	0.07	0.01	0.01	0.07	0.08	0.16	0.23	0.16	0.00	0.00	0.00	0.00
<b>Cfsm</b>	0.11	0.09	0.07	0.12	0.18	0.62	0.62	0.30	0.11	0.00	0.00	0.14
<b>In.</b>	0.13	0.10	0.08	0.14	0.19	0.71	0.69	0.34	0.12	0.00	0.00	0.16

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2011<sup>a</sup>, BY WATER YEAR (WY)**

	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>
<b>Mean</b>	0.45	0.59	0.91	1.33	1.64	2.08	1.33	0.73	0.43	0.22	0.13	1.01
<b>Max</b>	4.01	2.56	4.39	3.17	5.41	8.30	5.04	2.41	4.07	1.26	0.52	8.60
(WY)	(2003)	(2010)	(2010)	(1998)	(1998)	(1998)	(2003)	(2010)	(1995)	(1989)	(2008)	(1996)
<b>Min</b>	0.00	0.00	0.01	0.01	0.21	0.15	0.06	0.01	0.04	0.00	0.00	0.00
(WY)	(2008)	(2008)	(1989)	(2008)	(2011)	(2006)	(1995)	(2002)	(2008)	(1988)	(2007)	(1990)

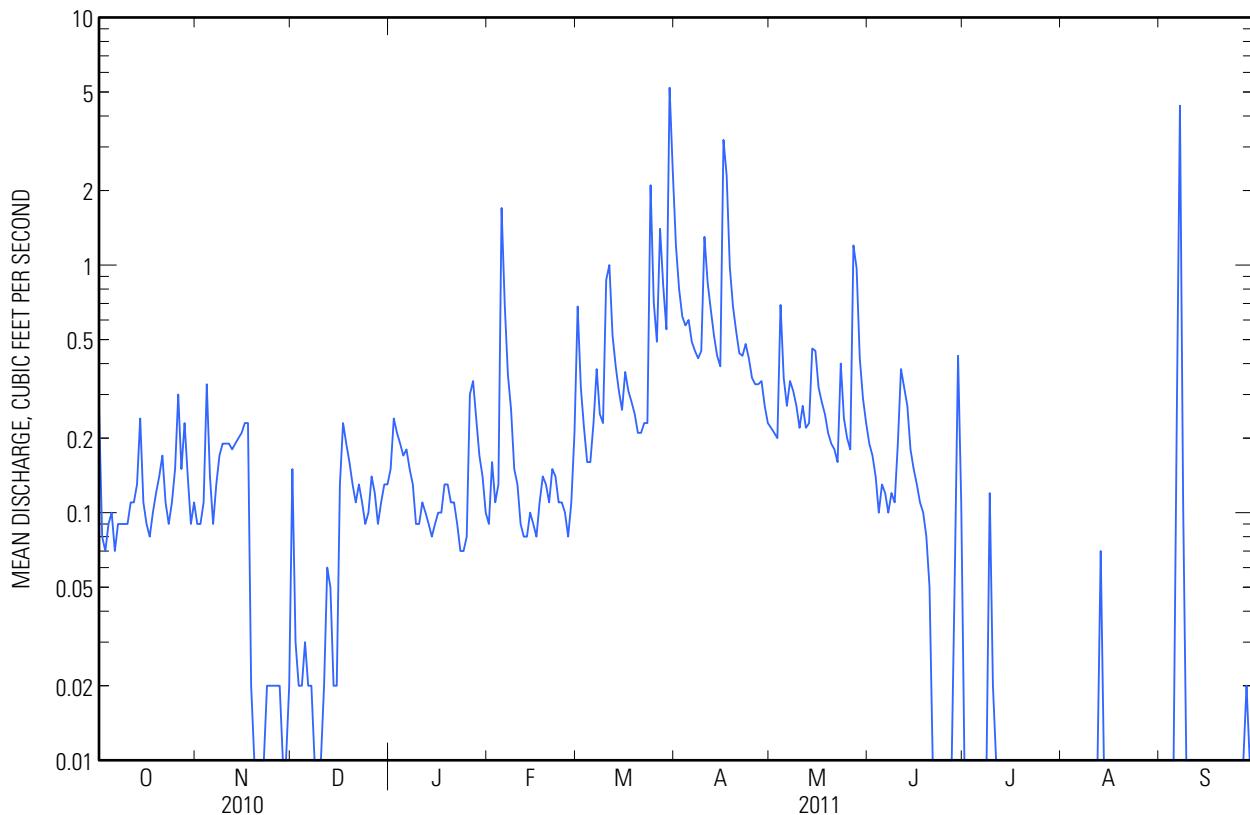
## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

## SUMMARY STATISTICS

	Calendar Year 2010	Water Year 2011	Water Years 1987 - 2011 <sup>a</sup>	
<b>Annual total</b>	311.58	81.80		
<b>Annual mean</b>	0.85	0.22	0.91	
<b>Highest annual mean</b>			2.00	2003
<b>Lowest annual mean</b>			0.16	2002
<b>Highest daily mean</b>	44	Jan 25	5.2	Mar 30
<b>Lowest daily mean</b>	0.00	Jul 6	0.00	Jun 21
<b>Annual seven-day minimum</b>	0.00	Jul 6	0.00	Jun 21
<b>Maximum peak flow</b>			43	Sep 7
<b>Maximum peak stage</b>			3.59	Sep 7
<b>Instantaneous low flow</b>			b0.00	Nov 19
<b>Annual runoff (cfsm)</b>	0.749	0.197	b1,410	Sep 6, 1996
<b>Annual runoff (inches)</b>	10.17	2.67	b7.77	Sep 6, 1996
<b>10 percent exceeds</b>	1.2	0.45	1.5	
<b>50 percent exceeds</b>	0.14	0.11	0.19	
<b>90 percent exceeds</b>	0.00	0.00	0.00	

<sup>a</sup> See Period of Record.

b See Remarks.



**0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued****WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 1988-91, 1994 to current year

REMARKS.--Station operated to define the impacts of various land-use development on surface-water quality in the Upper Neuse River basin. For the period February 1988 through June 1989 the inorganic chemical data and trace metal data were analyzed by the city of Durham's Brown Water Treatment Plant Laboratory.

**WATER-QUALITY DATA  
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 1 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Medium name	Sample type	Barometric pressure, mm Hg (00025)	Discharge, instantane- ous, ft <sup>3</sup> /s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)	Specific conductance, water, unfiltered, µS/cm at 25 °C (00095)
10-01-2010	1115	Surface water	Regular	739	.32	7.7	86	5.6	61
11-23-2010	1000	Surface water	Regular	750	.02	8.5	82	6.7	76
12-21-2010	1100	Surface water	Regular	752	.09	12.0	89	4.6	81
02-25-2011	1045	Surface water	Regular	747	.09	9.8	90	5.3	80
05-04-2011	0900	Surface water	Regular	757	.77	8.7	88	5.6	74
09-07-2011	1015	Surface water	Regular	752	.95	7.9	91	5.7	45

**WATER-QUALITY DATA  
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 2 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Ammonia plus organic		Nitrate plus		Orthophosphate		Phosphorus, water, unfiltered, mg/L as P (00665)
		Temperature, water, °C (00010)	nitrogen, water, unfiltered, mg/L as N (00625)	Ammonia, water, filtered, mg/L as N (00608)	nitrite, water, filtered, mg/L as N (00631)	Nitrate, water, filtered, mg/L as N (00618)	Nitrite, water, filtered, mg/L as N (00613)	
10-01-2010	1115	19.4	.32	<.010	<.008	<.008	<.001	.008
11-23-2010	1000	13.0	.10	<.010	<.008	<.008	<.001	.007
12-21-2010	1100	2.5	.10	.036	<.008	<.007	.001	.010
02-25-2011	1045	10.9	.11	<.010	.014	.014	<.001	.016
05-04-2011	0900	15.6	.31	<.010	.040	.037	.003	.016
09-07-2011	1015	22.1	.71	.019	.036	.034	.002	.086

## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 3 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Aluminum, water, unfiltered, recoverable, µg/L (01105)	Cadmium, water, unfiltered, recoverable, µg/L (01027)	Chromium, water, unfiltered, recoverable, µg/L (01034)	Cobalt, water, unfiltered, recoverable, microgram s per liter (01037)	Copper, water, unfiltered, recoverable, µg/L (01042)	Iron, water, unfiltered, recoverable, µg/L (01045)	Lead, water, unfiltered, recoverable, µg/L (01051)	Manganese, water, unfiltered, recoverable, µg/L (01055)	Mercury, water, unfiltered, recoverable, µg/L (71900)
10-01-2010	1115	266	<.05	<.21	.21	1.7	367	.29	8.9	<.005
11-23-2010	1000	65	<.05	<.21	.16	<.70	216	.07	15.9	<.005
12-21-2010	1100	--	--	--	--	--	--	--	--	--
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	870	<.05	.83	.36	3.2	864	.66	17.0	.014

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

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[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Molybdenum, water, unfiltered, recoverable, microgram s per liter (01062)	Nickel, water, unfiltered, recoverable, µg/L (01067)	Silver, water, unfiltered, recoverable, µg/L (01077)	Zinc, water, unfiltered, recoverable, µg/L (01092)	Arsenic, water, unfiltered, µg/L (01002)	Selenium, water, unfiltered, µg/L (01147)	1-Naphthol, (0.7 micron glass fiber filter), µg/L (49295)	2,4-D, methyl ester, water, filtered, recoverable, µg/L (50470)	2,4-D, water, filtered, recoverable, µg/L (39732)
10-01-2010	1115	.1	.49	<.01	<2.4	.36	.10	--	--	--
11-23-2010	1000	.1	.23	<.01	<2.4	.21	.06	--	--	--
12-21-2010	1100	--	--	--	--	--	<.036	<.200	<.06	--
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	<.1	1.0	<.01	4.0	.47	.14	--	--	--

## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

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[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	2,4-DB, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (38746)	2,6-Diethyl- aniline, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82660)	2-Chloro- 2',6'-diethyl- acetanilide, water, filtered, recover- able, µg/L (61618)	2-Chloro-4-isopropyl- amino-6-triazine, water, filtered, recover- able, µg/L (04040)	2-Chloro-6-ethyl- amino-4-s-triazine, water, filtered, recover- able, µg/L (04038)	2-Ethyl-6-methyl- aniline, water, filtered, recover- able, µg/L (61620)	2-Hydroxy- 4-iso-propyl- amino-6-ethyl- amino-s-triazine, water, filtered, recover- able, µg/L (50355)	2-Hydroxy- 4-iso-propyl- amino-6-ethyl- amino-s-triazine, water, filtered, recover- able, µg/L (61625)	3,4-Dichloro- aniline, water, filtered, recover- able, µg/L (61627)
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	<.02	<.006	<.010	E .014	<.06	<.010	<.060	<.004	<.004
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 6 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	3-Hydroxy-carbo-furan, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (49308)	4-Chloro-2-methyl- phenol, water, filtered, recover- able, µg/L (61633)	Acetochlor, water, filtered, recover- able, µg/L (49260)	Acifluorfen, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (49315)	Alachlor, water, filtered, recover- able, µg/L (46342)	Aldicarb sulfone, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (49313)	Aldicarb sulfoxide, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (49314)	Aldicarb, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (49312)	alpha-Endosulfan, water, filtered, recover- able, µg/L (34362)
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	<.040	<.005	<.010	<.040	<.008	<.08	<.060	<.12	<.006
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 7 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Azinphos-								Bentazon, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (38711)
		alpha-HCH, water, filtered, recoverable, µg/L (34253)	Atrazine, water, filtered, recoverable, µg/L (39632)	Azinphos-methyl, oxygen analog, water, filtered, recoverable, µg/L (61635)	(0.7 micron glass fiber filter), recoverable, µg/L (82686)	Bendiocarb, water, filtered, recoverable, µg/L (50299)	Benfluralin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82673)	Benomyl, water, filtered, recoverable, µg/L (50300)		
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	<.004	<.008	<.04	<.120	<.04	<.014	<.060	<.06	<.06
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 8 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Bromoxynil, water, filtered			Carbaryl, water, filtered			Chloramben		Chlorimuron- ethyl, water, filtered, recoverable, µg/L (50306)	Chlorpyrifos oxygen analog, water, filtered, recoverable, µg/L (61636)	Chlorpyrifos, water, filtered, recoverable, µg/L (38933)
		Bromacil, water, filtered, recoverable, µg/L (04029)	(0.7 micron glass fiber filter), recoverable, µg/L (49311)	Butylate, water, filtered, recoverable, µg/L (04028)	(0.7 micron glass fiber filter), recoverable, µg/L (49310)	(0.7 micron glass fiber filter), recoverable, µg/L (49309)	(0.7 micron glass fiber filter), recoverable, µg/L (61188)	(0.7 micron glass fiber filter), recoverable, µg/L (50306)	(0.7 micron glass fiber filter), recoverable, µg/L (61636)			
10-01-2010	1115	--	--	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--	--	--
12-21-2010	1100	<.06	<.12	<.004	<.04	<.040	<.10	<.080	<.06	<.004	<.06	<.004
02-25-2011	1045	--	--	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--	--	--

## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 9 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82687)	cis-Propiconazole, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (79846)	Clopyralid, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49305)	Cyanazine, water, filtered, recoverable, µg/L (04041)	Cycloate, water, filtered, recoverable, µg/L (04031)	Cyfluthrin, water, filtered, recoverable, µg/L (61585)	Cypermethrin, water, filtered, recoverable, µg/L (61586)	Dacthal monoacid, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49304)	DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82682)
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	< .010	< .008	< .06	< .022	< .04	< .016	< .020	< .04	< .008
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 10 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Desulfinyl-fipronil, water, filtered, recoverable, µg/L (62169)	Desulfinyl-fipronil, water, filtered, recoverable, µg/L (62170)	Dicamba, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (39572)	prop, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (38442)	Dichlorprop, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49302)	Dichlorvos, water, filtered, recoverable, µg/L (38775)	Dicrotophos, water, filtered, recoverable, µg/L (38454)	Dimethoate, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (39381)	Dimethoate, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82662)
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	< .029	< .012	< .006	< .04	< .04	< .04	< .08	< .008	< .006
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 11 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Dinoseb, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (49301)	Di- phenamid, water, filtered, recover- able, µg/L (04033)	Disulfoton sulfone, water, filtered, recover- able, µg/L (61640)	Disulfoton, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82677)	Diuron, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (49300)	Endosulfan sulfate, water, filtered, recover- able, µg/L (61590)	EPTC, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82668)	Ethal- fluralin, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82663)	Ethion monoxon, water, filtered, recover- able, µg/L (61644)
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	< .04	< .04	< .01	< .04	< .04	< .016	< .006	< .006	< .02
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 12 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Ethoprop, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82346)	Fenami- phos, sulfone, water, filtered, recover- able, µg/L (82672)	Fenami- sulfoxide, water, filtered, recover- able, µg/L (61645)	Fenami- phos, water, filtered, recover- able, µg/L (61646)	Fenuron, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (61591)	Fipronil sulfide, water, filtered, recover- able, µg/L (49297)	Fipronil sulfone, water, filtered, recover- able, µg/L (62167)	Fipronil water, filtered, recover- able, µg/L (62168)	Fipronil, water, filtered, recover- able, µg/L (62166)
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	< .008	< .016	< .054	< .08	< .03	< .06	< .012	< .024	< .018
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 13 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Fluome-turon, water, water, filtered, recoverable, µg/L (61694)	Flumetsulam, water, filtered, recoverable, µg/L (38811)	Fonofos, water, filtered, recoverable, µg/L (04095)	Hexazinone, water, filtered, recoverable, µg/L (04025)	Imazaquin, water, filtered, recoverable, µg/L (50356)	Imazethapyr, water, filtered, recoverable, µg/L (50407)	Imidacloprid, water, filtered, recoverable, µg/L (61695)	Iprodione, water, filtered, recoverable, µg/L (61593)	Isofen-phos, water, filtered, recoverable, µg/L (61594)
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	<.06	<.04	<.005	<.008	<.06	<.06	<.060	<.014	<.006
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 14 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Lambda-Cyhalothrin, water, filtered, recoverable, µg/L (61595)	Lindane, water, filtered, recoverable, µg/L (39341)	Linuron, water, filtered recoverable, µg/L (38478)	Malaoxonon, water, filtered, recoverable, µg/L (61652)	Malathion, water, filtered, recoverable, µg/L (39532)	MCPA, water, filtered recoverable, µg/L (38482)	MCPB, water, filtered recoverable, µg/L (38487)	Metalaxyl, water, filtered, recoverable, µg/L (50359)	Methidathion, water, filtered, recoverable, µg/L (61598)
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	<.010	<.004	<.04	<.022	<.016	<.04	<.20	<.04	<.012
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 15 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Methio-carb, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (38501)	Methomyl, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (49296)	Methyl paraoxon, water, filtered, recover- able, µg/L (61664)	Methyl parathion, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82667)	Metola-chlor, water, filtered, recover- able, µg/L (39415)	Metribuzin, water, filtered, recover- able, µg/L (82630)	Metsulfuron-methyl, water, filtered, recover- able, µg/L (61697)	Molinate, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82671)	Myclobutanil, water, filtered, recover- able, µg/L (61599)
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	< .040	< .120	< .01	< .008	< .020	< .012	< .14	< .004	< .010
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 16 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	N-(4-Chlorophenyl)-N'-methylurea, water, filtered, recover- able, µg/L (61692)	Napropamide, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82684)	Neburon, water, glass fiber filter), recover- able, µg/L (49294)	Nicosulfuron, water, filtered, recover- able, µg/L (50364)	Norflurazon, water, glass fiber filter), recover- able, µg/L (49293)	Oryzalin, water, glass fiber filter), recover- able, µg/L (49292)	Oxamyl, water, glass fiber filter), recover- able, µg/L (38866)	Oxyfluorfen, water, filtered, recover- able, µg/L (61600)	p,p'-DDE, water, filtered, recover- able, µg/L (34653)
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	< .06	< .008	< .02	< .10	< .04	< .04	< .12	< .006	< .002
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 17 of 21

[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Pendi-			Phorate,			Phosmet			Picloram,		
		Pebulate, water, filtered	methalin, water, filtered	Parathion, water, filtered, recover-	Phorate oxygen	water, filtered	(0.7 micron (0.7 micron analog, water, filtered, recover-	Phosmet oxygen	water, filtered	Phosmet, water, filtered, recover-	water, glass fiber filter), recover-	Prometon, water, filtered, recover-	
10-01-2010	1115	--	--	--	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--	--	--	--
12-21-2010	1100	< .020	< .016	< .012	< .03	< .020	< .05	< .140	< .12	< .012			
02-25-2011	1045	--	--	--	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--	--	--	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

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[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Propanil,			Propargite,			Propham,			Propoxur,			Propyz-
		Propa- chlor, water, filtered, recover-	water, filtered	(0.7 micron glass fiber filter), recover-	water, filtered	(0.7 micron glass fiber filter), recover-	water, filtered	Propicon- azole, water, filtered, recover-	water, filtered	(0.7 micron glass fiber filter), recover-	water, filtered	(0.7 micron glass fiber filter), recover-	amide, water, filtered, recover-	
10-01-2010	1115	--	--	--	--	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--	--	--	--	--
12-21-2010	1100	< .006	< .006	< .010	< .02	< .040	< .04	< .060	< .004	< .04				
02-25-2011	1045	--	--	--	--	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--	--	--	--	--

## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

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[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Tebu-thiuron, Sulfo-meturon- Simazine, water, filtered, recover- able, µg/L (04035)	water, filtered (50337)	Tefluthrin, (0.7 micron glass fiber filter), recover- able, µg/L (82670)	Terbacil, water, filtered (0.7 micron water, filtered, filter), recover- able, µg/L (61606)	Terbacil, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82665)	Terbufos oxygen analog sulfone, water, filtered, recover- able, µg/L (04032)	Terbufos, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (61674)	Terbufos, water, filtered (0.7 micron water, filtered, filter), recover- able, µg/L (82675)	Terbutyl- azine, water, filtered, recover- able, µg/L (04022)
10-01-2010	1115	--	--	--	--	--	--	--	--	--
11-23-2010	1000	--	--	--	--	--	--	--	--	--
12-21-2010	1100	< .006	< .060	< .03	< .010	< .024	< .040	< .04	< .02	< .01
02-25-2011	1045	--	--	--	--	--	--	--	--	--
05-04-2011	0900	--	--	--	--	--	--	--	--	--
09-07-2011	1015	--	--	--	--	--	--	--	--	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

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[%, percent; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Thiobencarb, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82681)	Triallate, trans- Propicon- (0.7 micron azole, water, filtered, recover- able, µg/L (79847)	Triclopyr, water, filtered (0.7 micron Tribuphos, water, filtered, recover- able, µg/L (82678)	Trifluralin, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (61610)	2,4-D plus 2,4-D methyl ester, sum on a molar basis, microgram s per liter as 2,4-D (49235)	Caffeine, water, filtered, recover- able, µg/L (82661)	2,4-D as 2,4-D (66496)	Caffeine, water, filtered, recover- able, µg/L (50305)	Suspended sediment concentration, mg/L (80154)
10-01-2010	1115	--	--	--	--	--	--	--	--	16
11-23-2010	1000	--	--	--	--	--	--	--	--	3
12-21-2010	1100	< .016	< .01	< .005	< .018	< .08	< .018	< .06	< .080	2
02-25-2011	1045	--	--	--	--	--	--	--	--	3
05-04-2011	0900	--	--	--	--	--	--	--	--	19
09-07-2011	1015	--	--	--	--	--	--	--	--	34

**0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued**

**WATER-QUALITY DATA  
WATER YEAR OCTOBER 2010 TO  
SEPTEMBER 2011**

Part 21 of 21

[%; percent; N, nitrogen; P, phosphorus;  
ft<sup>3</sup>/s, cubic feet per second; mg/L,  
milligrams per liter; mm Hg, millimeters  
of mercury; °C, degrees Celsius; µS/cm,  
microsiemens per centimeter; µg/L,  
micrograms per liter; --, no data; <, less  
than; E, estimated]

Date	Sample start time	Suspended sediment discharge, tons per day (80155)
10-01-2010	1115	.01
11-23-2010	1000	.00
12-21-2010	1100	.00
02-25-2011	1045	.00
05-04-2011	0900	.04
09-07-2011	1015	.09