

**01394500 RAHWAY RIVER NEAR SPRINGFIELD, NJ**

RAHWAY RIVER BASIN

LOCATION.--Lat 40°41'15", long 74°18'42" referenced to North American Datum of 1983, Springfield Township, Union County, NJ, Hydrologic Unit 02030104, on left bank 50 ft downstream from bridge on eastbound U.S. Highway 22, 100 ft downstream from Pope Brook, and 1.5 mi south of Springfield.

DRAINAGE AREA.--25.5 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--July 1938 to current year.

REVISED RECORDS.--WSP 1622: 1945. WDR NJ-1973: 1938(M), 1968(M), 1971(M).

GAGE.--Water-stage recorder and crest-stage gage. Former concrete control is no longer effective. Datum of gage is 66.17 ft above NGVD of 1929.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Water for municipal supply diverted by City of Orange at Orange Reservoir upstream on the West Branch Rahway River. The flow past this station is affected by diversions by pumpage from wells by Orange, South Orange, New Jersey-American Water Company, and Springfield station of Elizabethtown Water Company (deactivated in late 1980s). Several measurements of water temperature were made during the year. Since 1980, the site may be affected during high flows by backwater from the Lenape Park flood control dam, about 1 mi downstream. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s and (or) maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct 1	0730	1,180	5.90
Mar 7	0015	1,650	6.95
Mar 11	0500	1,490	6.61
Apr 17	0145	1,890	7.28
May 18	2100	1,510	6.65
Aug 14	1200	1,050	5.53
Aug 28	0915	*8,620	*10.88
Sep 6	2245	1,480	6.60
Sep 8	0745	1,080	5.61

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

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	434	e8.0	215	14	13	63	32	25	17	11	29	21
2	36	e7.5	38	34	49	37	25	23	16	11	8.0	18
3	15	e9.5	18	22	32	29	21	23	15	29	16	17
4	13	79	13	14	20	25	21	41	15	13	42	16
5	15	20	11	12	28	23	29	27	15	11	8.5	15
6	9.8	9.7	9.8	11	55	358	21	21	14	15	7.8	458
7	8.7	9.2	9.2	12	42	599	24	20	13	12	26	475
8	8.6	9.8	8.7	11	75	66	19	18	13	44	8.8	583
9	8.7	e10	9.3	9.8	38	44	18	17	17	20	160	68
10	8.7	e9.5	7.6	9.3	26	194	17	17	16	11	22	30
11	16	e9.0	8.2	9.3	21	752	16	17	73	12	9.4	23
12	50	e8.5	166	11	18	78	62	17	18	11	8.7	20
13	11	e9.5	102	9.8	17	49	107	16	15	10	8.7	19
14	16	e10	28	9.0	42	36	33	16	35	13	800	16
15	48	e9.5	17	8.9	45	30	23	150	29	11	212	17
16	14	25	13	9.2	29	74	220	53	14	9.9	68	15
17	11	71	11	8.9	42	36	816	89	351	9.5	23	14
18	11	10	9.9	47	117	29	76	661	159	11	16	13
19	13	8.5	10	52	104	25	52	441	26	9.3	67	13
20	e10	7.8	9.7	25	42	22	41	79	18	8.8	46	14
21	e9.5	7.1	9.2	19	38	51	35	64	15	8.7	44	13
22	e10	6.9	9.2	14	28	35	29	56	16	8.8	47	13
23	e10	7.1	8.9	12	22	84	139	36	34	8.2	17	80
24	e10	7.0	9.3	10	20	96	103	116	27	18	13	28
25	e10	8.0	9.4	10	445	53	93	36	17	24	28	13
26	e10	13	9.2	12	107	39	43	28	14	16	15	13
27	e17	e8.5	9.2	14	50	32	34	25	13	9.2	168	13
28	e16	e6.9	11	14	143	28	72	22	12	7.6	e4,650	16
29	e8.5	e6.1	11	13	---	25	42	21	12	20	421	72
30	e8.5	7.9	10	12	---	23	29	52	12	8.6	43	17
31	e8.5	---	10	12	---	22	---	21	---	7.5	26	---
<b>Total</b>	875.5	419.5	820.8	481.2	1,708	3,057	2,292	2,248	1,061	419.1	7,058.9	2,143
<b>Mean</b>	28.2	14.0	26.5	15.5	61.0	98.6	76.4	72.5	35.4	13.5	228	71.4
<b>Max</b>	434	79	215	52	445	752	816	661	351	44	4,650	583
<b>Min</b>	8.5	6.1	7.6	8.9	13	22	16	16	12	7.5	7.8	13
<b>Cfsm</b>	1.11	0.55	1.04	0.61	2.39	3.87	3.00	2.84	1.39	0.53	8.93	2.80
<b>In.</b>	1.28	0.61	1.20	0.70	2.49	4.46	3.34	3.28	1.55	0.61	10.30	3.13

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2011, BY WATER YEAR (WY)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	21.7	28.1	33.5	32.3	35.1	50.2	45.1	34.9	26.9	25.8	26.1	24.6
<b>Max</b>	111	107	129	116	79.5	178	186	112	123	138	228	151
<b>(WY)</b>	(2006)	(1973)	(1984)	(1979)	(1998)	(2010)	(2007)	(1989)	(2003)	(1975)	(2011)	(1999)
<b>Min</b>	2.17	2.73	4.02	4.26	6.86	8.08	7.37	6.31	4.14	2.23	2.10	2.97
<b>(WY)</b>	(1964)	(1950)	(1940)	(1966)	(2002)	(1981)	(1963)	(1965)	(1965)	(1966)	(1964)	(1964)

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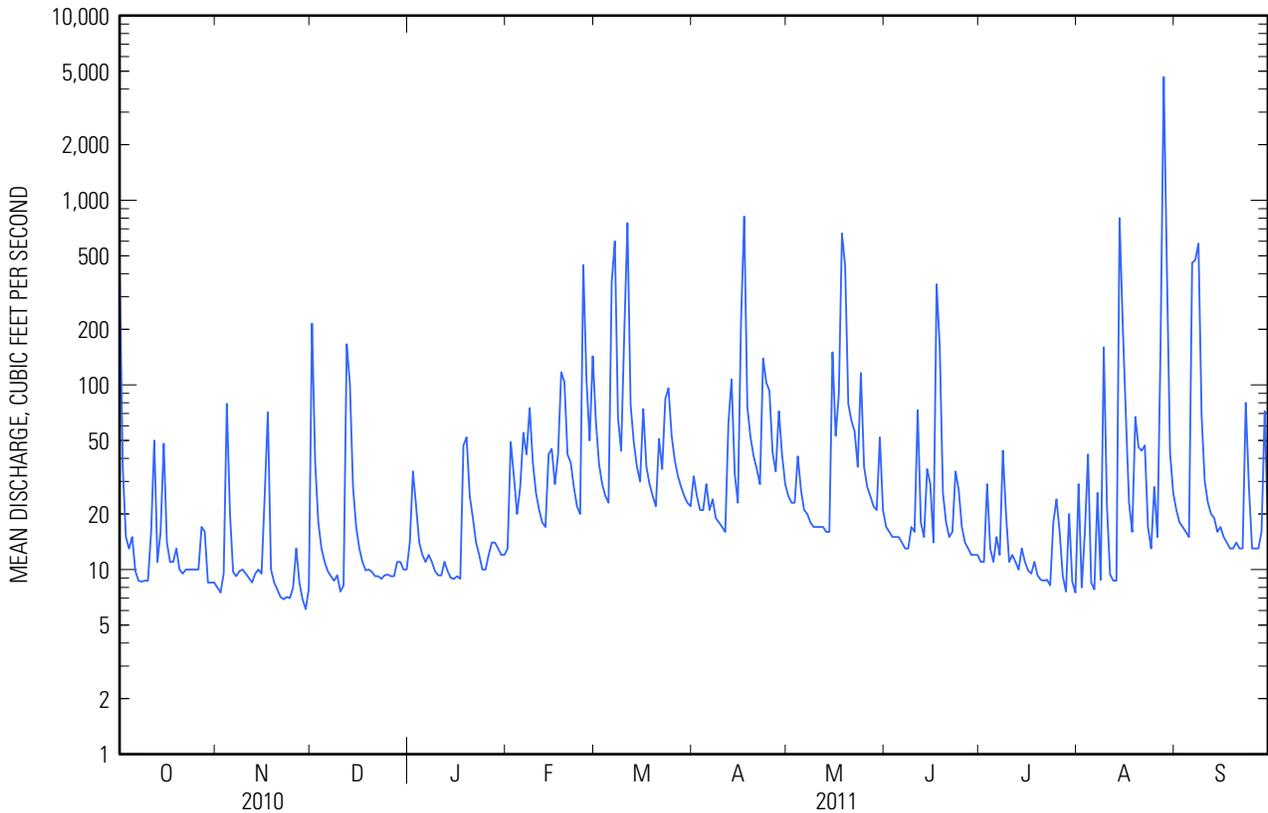
SUMMARY STATISTICS

	Calendar Year 2010		Water Year 2011		Water Years 1939 - 2011	
<b>Annual total</b>	14,148.2		22,584.0			
<b>Annual mean</b>	38.8		61.9		32.0	
<b>Highest annual mean</b>					61.9 2011	
<b>Lowest annual mean</b>					10.0 1965	
<b>Highest daily mean</b>	1,280	Mar 14	<sup>a</sup> 4,650	Aug 28	<sup>a</sup> 4,650	Aug 28, 2011
<b>Lowest daily mean</b>	6.1	Nov 29	<sup>a</sup> 6.1	Nov 29	0.40	Sep 11, 1966
<b>Annual seven-day minimum</b>	6.8	Aug 6	7.5	Nov 19	0.71	Oct 8, 1970
<b>Maximum peak flow</b>			<sup>b</sup> 8,620	Aug 28	<sup>b</sup> 8,620	Aug 28, 2011
<b>Maximum peak stage</b>			<sup>c</sup> 10.88	Aug 28	<sup>c</sup> 10.88	Aug 28, 2011
<b>Instantaneous low flow</b>			4.7	Dec 27	0.10	Sep 11, 1966
<b>Annual runoff (cfsm)</b>	1.52		2.43		1.25	
<b>Annual runoff (inches)</b>	20.64		32.95		17.05	
<b>10 percent exceeds</b>	63		86		62	
<b>50 percent exceeds</b>	14		17		12	
<b>90 percent exceeds</b>	7.6		8.8		3.7	

<sup>a</sup> Estimated.

<sup>b</sup> From rating curve extended above 2,820 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.

<sup>c</sup> From high-water mark in gage house.



## 01394500 RAHWAY RIVER NEAR SPRINGFIELD, NJ—Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Cooperative Network Site Descriptor: Urban Land Use Indicator, NJ Department of Environmental Protection Watershed Management Area 7.

COOPERATION.--Physical measurements and samples for laboratory analyses were provided by personnel of the NJ Department of Environmental Protection. Determination of concentrations of ammonia in filtered water was performed by the NJ Department of Health and Senior Services, Environmental and Chemical Laboratory (DHSS-ECL) except during the period May 12 through August 25, 2011 when the determination was performed by the National Water-Quality Laboratory. Determination of concentrations of suspended solids in unfiltered water was performed by the DHSS-ECL except during the period June 17 through August 25, 2011 when samples could not be accepted. Analysis of the split and concurrent replicate samples was performed by the Laboratory Branch of the U.S. Environmental Protection Agency, Region II, Division of Environmental Science and Assessment.

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

Part 1 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; cm, centimeter; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Sample start time	Medium name	Sample type	Barometric pressure, mm Hg (00025)	Temperature, air, °C (00020)	Absorbance, UV, 254 nm, 1 cm path length, water, filtered, units per centimeter (50624)	Absorbance, UV, organic constituents, 280 nm, 1 cm path length, water, filtered, units per centimeter (61726)	Discharge, instantaneous, ft <sup>3</sup> /s (00061)
11-04-2010	0900	Surface water	Replicate	757	10.0	.117	.090	58
11-04-2010	0900	<i>QC sample – Surface water</i>	<i>Split</i>	--	--	--	--	--
			<i>Replicate</i>					
11-04-2010	0901	<i>QC sample – Surface water</i>	<i>Concurrent</i>	--	--	--	--	--
			<i>Replicate</i>					
02-23-2011	0930	Surface water	Regular	771	8.0	.096	.072	21
06-20-2011	1115	Surface water	Regular	759	23.0	.103	.077	19
08-24-2011	1000	Surface water	Replicate	763	23.0	.107	.080	14
08-24-2011	1000	<i>QC sample - Surface water</i>	<i>Split</i>	--	--	--	--	--
			<i>Replicate</i>					
08-24-2011	1001	<i>QC sample - Surface water</i>	<i>Concurrent</i>	--	--	--	--	--
			<i>Replicate</i>					

## 01394500 RAHWAY RIVER NEAR SPRINGFIELD, NJ—Continued

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

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[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; cm, centimeter; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Sample start time	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)	Temperature, water, °C (00010)	Turbidity, water, unfiltered, broad band light source (400-680 nm), detectors at multiple angles including 90 +/- 30 degrees, ratiometric correction, NTRU (63676)	Dissolved solids dried at 180 °C, water, filtered, mg/L (70300)	Dissolved solids, water, filtered, sum of constituents, mg/L (70301)
11-04-2010	0900	7.7	67	7.6	627	9.5	11	373	343
11-04-2010	0900	--	--	--	--	--	--	370	336
11-04-2010	0901	--	--	--	--	--	--	380	336
02-23-2011	0930	11.1	80	7.6	1,580	1.9	2.5	895	806
06-20-2011	1115	5.1	56	7.5	696	20.0	4.6	432	375
08-24-2011	1000	6.2	67	7.7	690	19.2	3.5	436	373
08-24-2011	1000	--	--	--	--	--	--	460	362
08-24-2011	1001	--	--	--	--	--	--	450	366

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

Part 3 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; cm, centimeter; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Sample start time	Hardness, water, mg/L as CaCO <sub>3</sub> (00900)	Suspended solids, water, unfiltered, mg/L (00530)	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	ANC, water, unfiltered, fixed endpoint (pH 4.5) titration, laboratory, mg/L as CaCO <sub>3</sub> (90410)	Carbon (inorganic plus organic), suspended sediment, total, mg/L (00694)	Chloride, water, filtered, mg/L (00940)
11-04-2010	0900	202	5	61.3	12.0	2.63	41.5	119	1.96	110
11-04-2010	0900	199	11	60.0	12.0	2.80	47.0	120	--	110
11-04-2010	0901	199	12	60.0	12.0	2.80	47.0	120	--	110
02-23-2011	0930	201	3	59.7	12.7	2.45	202	92	.25	426
06-20-2011	1115	188	--	55.4	11.9	2.36	57.4	107	.56	138
08-24-2011	1000	198	--	59.3	12.1	2.40	52.9	116	.57	130
08-24-2011	1000	188	< 10	57.0	11.0	2.40	56.0	120	--	130
08-24-2011	1001	197	< 10	59.0	12.0	2.40	57.0	120	--	130

## 01394500 RAHWAY RIVER NEAR SPRINGFIELD, NJ—Continued

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

Part 4 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; cm, centimeter; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Sample start time	Fluoride, water, filtered, mg/L (00950)	Inorganic carbon, suspended sediment, total, mg/L (00688)	Silica, water, filtered, mg/L as SiO <sub>2</sub> (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia plus organic nitrogen, water, filtered, mg/L as N		Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Particulate nitrogen, suspended in water, mg/L (49570)	Phosphorus, water, filtered, mg/L as P (00666)
						Ammonia, water, filtered, mg/L as N (00623)	Ammonia, water, filtered, mg/L as N (00608)			
11-04-2010	0900	.18	< .03	12.4	26.9	.31	.049	.99	.08	.116
11-04-2010	0900	.16	--	--	28.0	E .41	.063	.960	--	.100
11-04-2010	0901	.17	--	--	28.0	E .40	.057	.970	--	.110
02-23-2011	0930	.10	< .03	12.8	27.4	.33	.015	1.54	.02	.018
06-20-2011	1115	.08	< .03	16.0	24.2	.33	.095	1.12	.06	.067
08-24-2011	1000	.10	< .03	16.5	24.9	.22	.040	1.13	.05	.050
08-24-2011	1000	.09	--	--	28.0	E .36	< .050	1.20	--	< .050
08-24-2011	1001	.09	--	--	28.0	E .44	< .050	1.20	--	< .050

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

Part 5 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; cm, centimeter; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Sample start time	Phosphorus, water, unfiltered, mg/L as P (00665)	Total nitrogen, water, filtered, mg/L (00602)	Total nitrogen, water, unfiltered, mg/L (00600)	Organic carbon, suspended sediment, total, mg/L (00689)	Organic carbon, water, filtered, mg/L (00681)
11-04-2010	0900	.150	E 1.4	--	--	4.0
11-04-2010	0901	.150	E 1.4	--	--	4.3
02-23-2011	0930	.041	1.9	1.9	.25	3.0
06-20-2011	1115	.099	1.5	1.5	.56	3.1
08-24-2011	1000	.080	1.3	1.4	.57	3.6
08-24-2011	1000	.054	E 1.6	--	--	3.6
08-24-2011	1001	.058	E 1.6	--	--	3.1