



Water-Data Report 2009

01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, NJ

RARITAN RIVER BASIN

LOCATION.--Lat 40°28'30", long 74°34'33" referenced to North American Datum of 1983, Hillsborough Township, Somerset County, NJ, Hydrologic Unit 02030105, on left bank 30 ft downstream from highway bridge at Blackwells Mills, and 0.3 mi downstream from Six Mile Run.

DRAINAGE AREA.--258 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--June 1903 to December 1904 (gage heights only), August 1921 to current year. Monthly discharge only for some periods, published in WSP 1302. Published as "at Millstone" 1903-04.

REVISED RECORDS.--WSP 1552: 1924-25(M), 1926.

GAGE.--Water-stage recorder. Concrete control since Nov 18, 1933. Datum of gage is 26.97 ft above NGVD of 1929. June 27, 1903 to Dec 31, 1904, non-recording gage at bridge 2.0 mi downstream at Millstone at different datum. Aug 4, 1921 to Aug 16, 1928, non-recording gage at present site and datum.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Inflow from and losses to Delaware and Raritan Canal above station. Flow slightly regulated by Carnegie Lake, capacity, 310,000,000 gal and several smaller reservoirs, combined capacity, 49,800,000 gal. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec 12	1945	*7,160	*11.88
May 8	0345	3,740	8.68
Aug 3	1300	3,390	8.22
Aug 23	1015	5,390	10.43

01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, NJ—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES
[*e*, estimated]

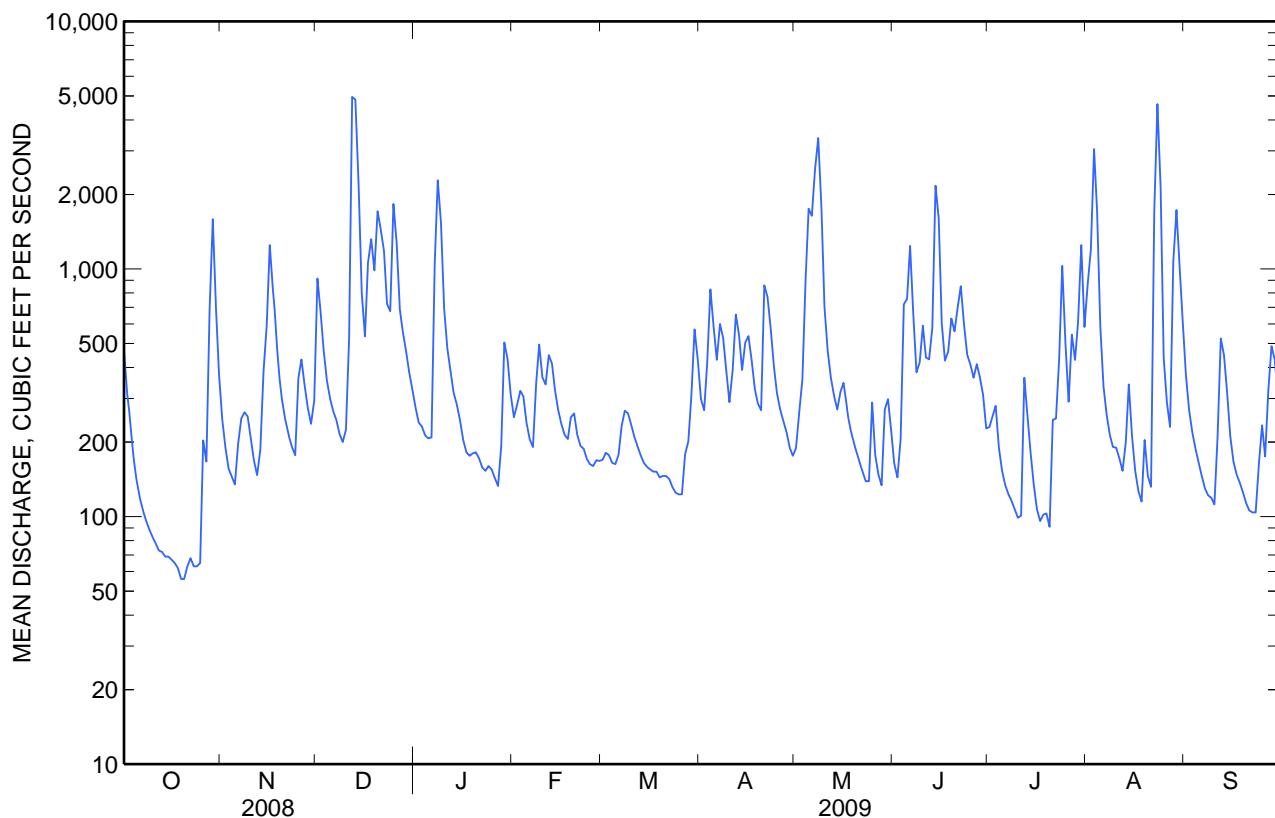
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	e470	247	916	274	252	170	298	189	164	230	867	373
2	313	190	680	240	283	181	269	263	144	255	1,200	269
3	235	156	469	231	322	177	418	358	206	280	3,050	219
4	175	145	355	213	306	165	827	909	720	190	1,700	189
5	141	135	300	207	239	163	585	1,750	757	153	584	166
6	120	196	266	209	205	178	430	1,640	1,240	134	335	146
7	105	249	246	1,050	191	232	600	2,530	658	123	257	130
8	96	264	216	2,280	345	268	525	3,380	383	116	213	122
9	89	254	200	1,540	495	261	389	1,770	420	107	191	119
10	83	208	224	692	365	235	290	702	590	99	190	112
11	78	169	527	477	342	210	389	468	439	101	172	211
12	73	147	4,950	386	449	192	655	364	432	364	153	524
13	72	186	4,830	317	414	177	541	307	580	259	199	449
14	69	385	2,210	284	323	165	391	271	2,170	182	342	314
15	69	594	801	245	269	159	505	319	1,600	135	212	212
16	67	1,250	535	204	236	155	536	347	603	107	153	167
17	65	820	1,060	e182	214	152	427	281	427	96	127	148
18	62	541	1,320	176	206	152	327	232	464	102	115	137
19	56	374	987	180	252	144	286	203	631	103	204	125
20	56	287	1,710	182	261	146	269	184	560	91	146	113
21	63	242	1,440	172	214	146	858	167	703	246	132	106
22	68	e212	1,180	158	193	142	771	152	852	249	1,690	104
23	63	191	723	153	188	132	574	139	598	437	4,630	104
24	63	177	676	160	171	125	404	139	451	1,030	2,120	163
25	65	363	1,830	155	163	123	315	289	411	502	439	234
26	203	431	1,280	143	160	123	271	178	364	291	290	175
27	167	339	686	133	169	179	243	148	413	543	230	323
28	685	274	556	194	168	201	219	134	366	429	1,070	488
29	1,590	237	465	505	---	307	190	271	311	612	1,730	431
30	692	294	381	434	---	570	176	298	227	1,250	1,010	304
31	375	---	324	311	---	431	---	222	---	583	614	---
Total	6,528	9,557	32,343	12,087	7,395	6,161	12,978	18,604	17,884	9,399	24,365	6,677
Mean	211	319	1,043	390	264	199	433	600	596	303	786	223
Max	1,590	1,250	4,950	2,280	495	570	858	3,380	2,170	1,250	4,630	524
Min	56	135	200	133	160	123	176	134	144	91	115	104
Cfsm	0.82	1.23	4.04	1.51	1.02	0.77	1.68	2.33	2.31	1.18	3.05	0.86
In.	0.94	1.38	4.66	1.74	1.07	0.89	1.87	2.68	2.58	1.36	3.51	0.96

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	219	341	482	516	561	681	551	361	256	243	217	228
Max	1,296	1,113	1,550	1,743	1,199	1,882	1,968	1,264	1,217	1,808	1,267	1,370
(WY)	(2006)	(1973)	(1997)	(1979)	(1925)	(1994)	(2007)	(1989)	(2003)	(1975)	(1971)	(1999)
Min	42.6	51.2	67.0	62.9	105	158	103	82.8	45.5	19.3	17.3	20.2
(WY)	(1942)	(1966)	(1966)	(1981)	(1934)	(1985)	(1985)	(1963)	(1963)	(1966)	(1981)	(1980)

01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, NJ—Continued**SUMMARY STATISTICS**

	Calendar Year 2008	Water Year 2009		Water Years 1922 - 2009	
Annual total	148,203		163,978		
Annual mean	405		449		387
Highest annual mean				690	1975
Lowest annual mean				165	1985
Highest daily mean	4,950	Dec 12	4,950	Dec 12	22,000 Sep 17, 1999
Lowest daily mean	41	Aug 29	56	Oct 19, 20	5.0 Sep 16, 1923
Annual seven-day minimum	48	Aug 23	62	Oct 18	6.3 Aug 7, 1966
Maximum peak flow			7,160	Dec 12	26,200 Sep 17, 1999
Maximum peak stage			11.88	Dec 12	21.01 Sep 17, 1999
Instantaneous low flow			52	Oct 19	5.0 Sep 16, 1923
Annual runoff (cfsm)	1.57		1.74		1.50
Annual runoff (inches)	21.37		23.64		20.39
10 percent exceeds	869		912		831
50 percent exceeds	232		259		200
90 percent exceeds	63		121		60



01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, NJ—Continued**WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 1962-69, 1973, 1976-80, 1991 to current year.

REMARKS.--Cooperative Network Site Descriptor: Watershed Integrator, New Jersey Department of Environmental Protection, Watershed Management Area 10.

COOPERATION.--Physical measurements and samples for laboratory analysis were provided by personnel of the NJ Department of Environmental Protection. Determinations of dissolved ammonia, dissolved orthophosphate, and suspended residue were performed by the NJ Department of Health and Senior Services, Environmental and Chemical Laboratory. Analysis of the split and concurrent replicate samples was performed by the Laboratory Branch of the U.S. EPA, Region II, Division of Environmental Science and Assessment.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
 Part 1 of 4
 [Remark codes: <, less than; E, estimated.]

Date	Time	Medium name	Sample type	Baro-metric pressure, mm Hg (00025)	Temper-ature, air, deg C (00020)	UV absorb-ance, 254 nm, wat flt units /cm (50624)	UV absorb-ance, 280 nm, wat flt units /cm (61726)	Instan-taneous discharge, ft ³ /s (00061)
Nov								
18...	0800	Surface water	Replicate	763	2.5	.269	.213	563
18...	0800	QC sample - Surface water	Split Replicate	--	--	--	--	--
18...	0801	QC sample - Surface water	Concurrent Replicate	--	--	--	--	--
Feb								
10...	0800	Surface water	Replicate	769	1.0	.091	.071	378
10...	0800	QC sample - Surface water	Split Replicate	--	--	--	--	--
10...	0801	QC sample - Surface water	Concurrent Replicate	--	--	--	--	--
Jun								
03...	0800	Surface water	Replicate	762	17.5	.127	.095	193
03...	0800	QC sample - Surface water	Split Replicate	--	--	--	--	--
03...	0801	QC sample - Surface water	Concurrent Replicate	--	--	--	--	--
Sep								
02...	0900	Surface water	Regular	770	15.0	.233	.181	275

01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
 Part 2 of 4
 [Remark codes: <, less than; E, estimated.]

Date	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif-ic conduc-tance, $\mu\text{S}/\text{cm}$ @ 25 degC (00095)	Temper-ature, water, deg C (00010)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Dis-solved solids dried @ 180degC wat flt (70300)	Dis-solved solids, sum of constituents, mg/L (70301)	Hard-ness, water, mg/L as CaCO ₃ (00900)	Sus-pended solids, water, unfltrd (00530)	Cal-cium, water, fltrd, mg/L (00915)	Magnes-iun, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)
Nov													
18...	8.5	74	7.4	237	9.0	9.1	148	E131	63	2	15.1	6.14	3.78
18...	--	--	7.4	237	--	9.1	E150	125	59	<10	14.0	5.90	3.70
18...	--	--	7.4	237	--	9.1	160	124	59	<10	14.0	5.80	3.80
Feb													
10...	11.4	85	7.6	690	2.9	6.6	346	345	96	4	23.1	9.33	3.40
10...	--	--	7.6	690	--	6.6	350	352	100	<10	25.0	10.0	3.90
10...	--	--	7.6	690	--	6.6	360	345	97	<10	23.0	9.70	3.70
Jun													
03...	5.8	63	7.2	356	19.7	10	224	190	84	10	19.8	8.41	3.56
03...	--	--	7.2	356	--	10	210	189	82	12	19.0	8.40	3.50
03...	--	--	7.2	356	--	10	230	187	82	<10	19.0	8.40	3.60
Sep													
02...	6.5	70	7.2	243	19.4	8.4	143	134	63	6	15.2	6.04	3.31

WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
 Part 3 of 4
 [Remark codes: <, less than; E, estimated.]

Date	ANC, wat unf fixed (90410)	Total carbon, lab, end pt, suspnd sedimnt (00694)	Chlor-ide, water, fltrd, total, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Inor-ganic carbon, water, suspnd sediment (00688)	Silica, water, total, mg/L (SiO ₂) (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd, mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00631)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	
Nov													
18...	17.7	39	.4	27.9	E.07	<.04	10.7	19.9	.51	--	.047	1.43	.111
18...	20.0	38	--	32.0	.12	--	--	19.0	E.19	E.25	.067	1.50	.120
18...	19.0	38	--	32.0	.11	--	--	19.0	<.10	E.34	.064	1.50	.120
Feb													
10...	84.9	31	.5	163	.11	<.04	9.5	22.4	.53	--	.189	2.25	.067
10...	91.0	31	--	170	.12	--	--	22.0	E.51	E.72	.150	2.40	.028
10...	86.0	32	--	170	.12	--	--	22.0	E.57	E.71	.150	2.40	.031
Jun													
03...	30.6	41	.6	57.2	.14	<.04	8.2	24.9	.48	--	.070	2.66	.180
03...	31.0	41	--	64.0	.13	--	--	25.0	E.35	E.39	.075	2.90	.160
03...	31.0	41	--	62.0	.13	--	--	25.0	E.34	E.61	.073	2.90	.160
Sep													
02...	18.5	39	.5	29.0	.12	<.04	11.6	18.2	.52	--	.074	1.95	.172

01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, NJ—Continued
**WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009**

Part 4 of 4

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

Date	Partic- ulate nitro- gen, susp, water, mg/L (49570)	Phos- phorus, water, filtrd, mg/L (00666)	Phos- phorus, water, unfiltrd, mg/L (00665)	Total nitro- gen, water, filtrd, mg/L (00602)	Total nitro- gen, water, unfiltrd, mg/L (00600)	Boron, water, filtrd, μg/L (01020)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, filtrd, mg/L (00681)
Nov								
18...	.04	.140	.170	1.9	2.0	--	.37	7.1
18...	--	.160	.180	1.7	E1.8	50	--	11.0
18...	--	.140	.190	--	1.8	50	--	8.1
Feb								
10...	.08	.07	.12	2.8	2.9	--	.52	2.5
10...	--	.069	.120	E2.9	E3.1	40	--	3.2
10...	--	.078	.120	E3.0	E3.1	40	--	3.7
Jun								
03...	.07	.20	.25	3.1	3.2	--	.65	4.3
03...	--	.210	.250	E3.2	E3.3	60	--	5.4
03...	--	.210	.250	E3.2	E3.5	60	--	5.4
Sep								
02...	.06	.20	.24	2.5	2.5	--	.49	5.1