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 mi^2.

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, nonrecording gage at bridge 2.0 mi downstream at Millstone at different datum. Aug. 4, 1921 to Aug. 16, 1928, nonrecording 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 gage-height telemetry at station.

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

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 14	1230	*4,980	*10.26
Mar 9	1145	4,780	10.08

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	43	135	129	913	592	342	235	279	213	88	76	53
2	44	110	117	605	2,320	338	248	216	176	76	90	47
3	e49	103	306	396	1,630	313	231	187	153	68	106	45
4	48	98	381	271	803	289	352	175	266	60	77	44
5	45	88	277	250	520	886	446	162	738	65	67	41
6	45	99	209	244	443	958	337	147	770	82	61	300
7	45	105	164	244	416	594	274	138	497	85	58	1,600
8	46	93	147	242	345	1,650	243	132	266	99	56	786
9	48	88	136	232	297	4,010	225	257	194	82	54	442
10	90	83	195	208	291	2,090	213	608	159	71	53	342
11	120	79	190	395	e250	846	200	376	138	63	79	216
12	227	77	180	716	e190	569	579	353	121	58	89	170
13	377	78	245	689	1,410	473	481	452	110	54	76	208
14	221	84	663	629	4,310	394	325	355	97	68	87	176
15	120	98	614	585	2,400	372	259	253	229	67	159	142
16	86	122	1,080	476	1,080	345	227	423	196	57	176	109
17	72	110	1,570	355	599	312	204	1,100	149	53	140	91
18	62	95	739	939	896	282	194	747	121	55	120	77
19	75	107	426	1,020	997	429	182	726	126	55	95	68
20	120	126	316	619	573	1,770	171	598	103	46	86	62
21	97	126	266	380	436	1,460	164	862	92	49	69	59
22	79	125	235	289	391	651	159	592	88	51	63	58
23	72	121	377	274	419	472	152	422	89	179	58	56
24	79	102	1,390	239	399	384	147	311	83	1,020	53	53
25	102	93	681	213	411	336	138	252	79	466	50	51
26	111	174	420	190	491	305	129	218	73	243	48	187
27	1,110	265	455	187	670	277	125	204	69	156	44	257
28	1,110	227	417	176	541	267	217	308	85	117	44	686
29	418	185	956	173	372	247	720	258	143	106	41	1,770
30	252	154	854	185	---	225	438	192	124	126	71	833
31	172	---	1,070	190	---	212	---	192	---	97	67	---
Total	5,585	3,550	15,205	12,524	24,492	22,098	8,015	11,495	5,747	3,962	2,413	9,029
Mean	180	118	490	404	845	713	267	371	192	128	77.8	301
Max	1,110	265	1,570	1,020	4,310	4,010	720	1,100	770	1,020	176	1,770
Min	43	77	117	173	190	212	125	132	69	46	41	41
Cfsm	0.70	0.46	1.90	1.57	3.27	2.76	1.04	1.44	0.74	0.50	0.30	1.17
In.	0.81	0.51	2.19	1.81	3.53	3.19	1.16	1.66	0.83	0.57	0.35	1.30

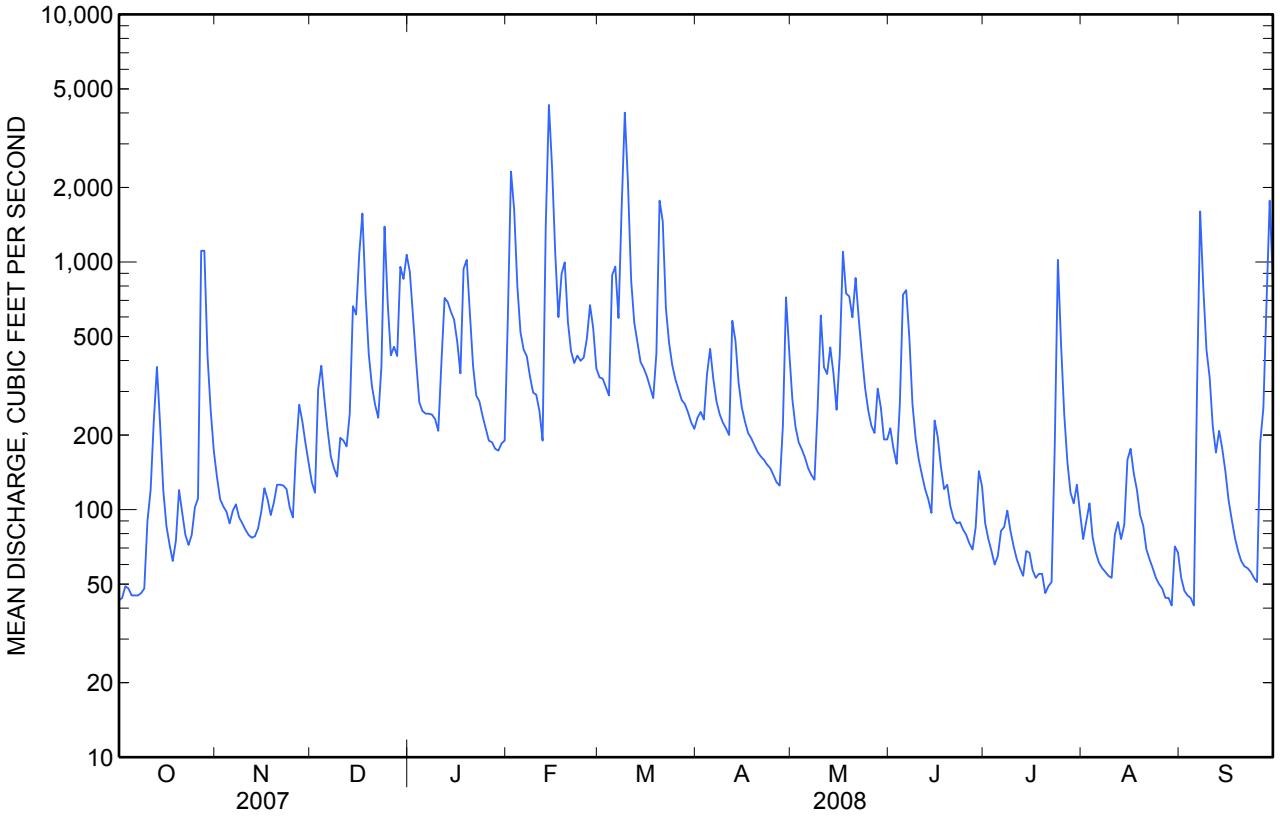
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	219	341	476	518	564	687	553	358	252	242	210	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 2007		Water Year 2008		Water Years 1922 - 2008	
Annual total	162,681		124,115			
Annual mean	446		339		386	
Highest annual mean					690	1975
Lowest annual mean					165	1985
Highest daily mean	19,600	Apr 16	4,310	Feb 14	22,000	Sep 17, 1999
Lowest daily mean	43	Sep 30	41	Aug 29	5.0	Sep 16, 1923
Annual seven-day minimum	45	Sep 30	46	Oct 1	6.3	Aug 7, 1966
Maximum peak flow			4,980	Feb 14	26,200	Sep 17, 1999
Maximum peak stage			10.26	Feb 14	21.01	Sep 17, 1999
Instantaneous low flow			38	Many days	5.0	Sep 16, 1923
Annual runoff (cfsm)	1.73		1.31		1.50	
Annual runoff (inches)	23.46		17.90		20.35	
10 percent exceeds	820		754		830	
50 percent exceeds	195		194		200	
90 percent exceeds	67		58		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 analyses were provided by personnel of the NJ Department of Environmental Protection. Determinations of dissolved ammonia, dissolved orthophosphate, suspended residue, ammonia-plus-organic nitrogen in bed sediment, and phosphorus in bed sediment 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 2007 TO SEPTEMBER 2008

Part 1 of 4

[QC, quality control sample. Remark codes: <, less than; E, estimated; M, presence verified but not quantified; U, analyzed for but not detected.]

Date	Time	Sample medium and type	Instantaneous discharge, ft3/s (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)
Dec									
11...	0900	Surface water, regular	193	8.2	.128	.099	772	10.6	84
Mar									
05...	0800	Surface water, regular	552	14	.105	.082	748	10.2	90
05...	*0800*	*QC - Surface water, split replicate*	--	--	--	--	--	--	--
05...	*0801*	*QC - Surface water, concurrent replicate*	--	--	--	--	--	--	--
Jun									
02...	0900	Surface water, regular	176	7.4	.152	.117	760	4.8	54
02...	*0900*	*QC - Surface water, split replicate*	--	--	--	--	--	--	--
02...	*0901*	*QC - Surface water, concurrent replicate*	--	--	--	--	--	--	--
Aug									
05...	1030	Surface water, regular	68	4.3	.151	.113	762	4.4	54

01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
Part 2 of 4
[QC, quality control sample. Remark codes: <, less than; E, estimated; M, presence verified but not quantified; U, analyzed for but not detected.]

Date	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L as SiO2 (00955)
Dec													
11...	7.5	481	3.5	5.3	99	22.8	10.2	4.61	52.4	43	91.5	.14	9.8
Mar													
05...	7.3	390	12.0	9.5	76	17.9	7.66	3.02	40.4	31	73.0	E.11	9.9
05...	--	--	--	--	*73*	*17.0*	*7.50*	*2.90*	*40.0*	*32*	*76.0*	*.10*	--
05...	--	--	--	--	*74*	*17.0*	*7.60*	*2.90*	*40.0*	*32*	*75.0*	*.11*	--
Jun													
02...	7.1	275	17.0	21.0	68	14.9	7.51	3.34	23.0	35	38.4	.16	8.6
02...	--	--	--	--	*67*	*14.0*	*7.70*	*3.60*	*24.0*	*37*	*43.0*	*.14*	--
02...	--	--	--	--	*67*	*14.0*	*7.80*	*3.60*	*24.0*	*37*	*43.0*	*.14*	--
Aug													
05...	7.2	300	24.0	24.8	76	17.1	8.15	4.44	24.5	46	39.1	.21	7.7

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
Part 3 of 4
[QC, quality control sample. Remark codes: <, less than; E, estimated; M, presence verified but not quantified; U, analyzed for but not detected.]

Date	Sulfate water, fltrd, mg/L (00945)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total non-filterable, mg/L (00530)	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 + nitrite water fltrd, mg/L as N (00631)	Particulate nitrogen, susp, water, mg/L (49570)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L as P (00666)
Dec													
11...	27.4	258	248	5	.41	--	.082	2.84	.11	3.3	3.4	.216	.24
Mar													
05...	24.2	E206	210	14	.44	--	E.096	2.34	.07	2.8	2.9	.168	.17
05...	*26.0*	*200*	*230*	*E16*	*E.44*	*E.60*	*.059*	*2.40*	--	*E2.8*	*E3.0*	*.180*	*.150*
05...	*26.0*	*199*	*220*	*E11*	*E.48*	*E.48*	*.054*	*2.40*	--	*E2.9*	*E2.9*	*.180*	*.170*
Jun													
02...	23.3	151	170	9	.54	--	.071	2.16	.04	2.7	2.7	.245	.27
02...	*22.0*	*147*	*170*	*U10*	*E.95*	--	*.050*	*2.20*	--	*E3.2*	*4.3*	*.180*	*.280*
02...	*22.0*	*147*	*150*	*<10*	*E.97*	*E.97*	*<.050*	*2.20*	--	*E3.2*	*E3.2*	*.170*	*.280*
Aug													
05...	24.6	164	214	3	.76	--	.037	2.17	.06	2.9	3.0	.327	.42

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
Part 4 of 4
[QC, quality control sample. Remark codes: <, less than; E, estimated; M, presence verified but not quantified; U, analyzed for but not detected.]

Date	Phos-phorus, water, unfltrd mg/L as P (00665)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inor-ganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Boron, water, fltrd, µg/L (01020)
Dec						
11...	.27	.7	<.04	.7	4.6	59
Mar						
05...	.21	.5	M	.5	2.8	41
05...	*.220*	--	--	--	*3.2*	*40*
05...	*.230*	--	--	--	*3.0*	*40*
Jun						
02...	.31	.4	<.04	.4	4.6	50
02...	*.300*	--	--	--	*6.7*	*50*
02...	*.290*	--	--	--	*5.4*	*50*
Aug						
05...	.45	.5	<.04	.5	5.3	69

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
Part 1 of 4
[Remark codes: <, less than; E, estimated.]

Date	Time	pH bed sedimnt std units (70310)	Ammonia + org-N, bed sed total, mg/kg as N (00626)	Phos-phorus, bed sedimnt total, mg/kg as P (00668)	Total carbon, bed sedimnt total, g/kg (00693)	Inor-ganic carbon, bed sedimnt total, g/kg (00686)	Arsenic bed sedimnt recover-able, ug/g (64847)	Cadmium bed sedimnt recover-able, ug/g (01028)	Chrom-ium, bed sedimnt recover-able, ug/g (01029)	Cobalt bed sedimnt recover-able, ug/g (01038)	Copper, bed sedimnt recover-able, ug/g (01043)	Iron, bed sedimnt total digest, ug/g (01170)	Lead, bed sedimnt recover-able, ug/g (01052)
Aug													
05...	0900	7.09	440	2,900	2.8	<.2	5.7	.130	31	15.6	14	36,000	18

01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
Part 2 of 4
[Remark codes: <, less than; E, estimated.]

Date	Manganese, bed sedimnt recoverable, ug/g (01053)	Mercury bed sedimnt recoverable, ug/g (71921)	Nickel, bed sedimnt recoverable, ug/g (01068)	Selenium, bed sedimnt recoverable, ug/g (64848)	Zinc, bed sedimnt recoverable, ug/g (01093)	1,2-Dimethylnaphthalene, bed sed <2 mm, ug/kg (49403)	1,6-Dimethylnaphthalene, bed sed <2 mm, ug/kg (49404)	1Methyl-9H-fluorene, bed sed <2 mm, ug/kg (49398)	1-Methylphenanthrene, bed sed <2 mm, ug/kg (49410)	1-Methylpyrene, bed sed <2 mm, wsv nat ug/kg (49388)	236Trimethylnaphthalene, bed sed <2 mm, ug/kg (49405)	2,6-Dimethylnaphthalene, bed sed <2 mm, ug/kg (49406)	2-Ethylnaphthalene bed sed <2 mm wsv nat ug/kg (49948)
Aug 05...	840	<.007	30.9	<.1	120	<55	<55	<55	E4	E5	<55	E2	<55

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
Part 3 of 4
[Remark codes: <, less than; E, estimated.]

Date	2-Methylanthracene, bed sed <2 mm, ug/kg (49435)	4H-Cyclopenta-[def]-phenanthrene, bs <2mm ug/kg (49411)	9H-Fluorene, bed sed <2 mm, wsv nat ug/kg (49399)	Acenaphthene, bed sed <2 mm, wsv nat ug/kg (49429)	Acenaphthylene, bed sed <2 mm, wsv nat ug/kg (49428)	Anthracene, bed sed <2 mm, wsv nat field, ug/kg (49434)	Benzo-[a]-anthracene, bed sed <2 mm, ug/kg (49436)	Benzo-[a]-pyrene, bed sed <2 mm, wsv nat ug/kg (49389)	Benzo-[b]-fluoranthene bed sed <2 mm ug/kg (49458)	Benzo-[ghi]-perylene, bed sed <2 mm, ug/kg (49408)	Benzo-[k]-fluoranthene bed sed <2 mm ug/kg (49397)	Chrysene, bed sed <2 mm, wsv nat field, ug/kg (49450)	Dibenzo-[a,h]-anthracene, bed sed <2 mm, ug/kg (49461)
Aug 05...	<55	E6	E2	E1	E5	E7	E29	E36	59	E26	E22	E38	<55

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
Part 4 of 4
[Remark codes: <, less than; E, estimated.]

Date	Fluoranthene bed sed <2 mm wsv nat field, ug/kg (49466)	Indeno-[1,2,-3-cd]-pyrene, bed sed <2 mm ug/kg (49390)	Isophorone bed sed <2 mm, wsv nat field, ug/kg (49400)	Naphthalene, bed sed <2 mm wsv nat ug/kg (49402)	PCBs, bed sedimnt ug/kg (39519)	p-Cresol, bed sed <2 mm, wsv nat field, ug/kg (49451)	Phenanthrene, bed sed <2 mm, wsv nat field, ug/kg (49409)	Phenanthridine, bed sed <2 mm, wsv nat ug/kg (49393)	Pyrene, bed sed <2 mm, wsv nat field, ug/kg (49387)	Bed sediment, dry svd sve dia percent <62.5um (80164)
Aug 05...	72	E25	<55	<55	E3.52	<55	E26	<55	58	9