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Water-Data Report 2006

**01381800 WHIPPANY RIVER NEAR PINE BROOK, NJ**

PASSAIC RIVER BASIN

LOCATION.--Lat 40°50'42", long 74°20'50" referenced to North American Datum of 1983, Parsipany-Troy Hills Township, Morris County, NJ, Hydrologic Unit 02030103, on left upstream wingwall of former bridge on Edwards Road, 200 ft downstream from bridges of Interstate 280, 0.4 mi upstream from Rockaway River, and 1.2 mi southwest of Pine Brook.

DRAINAGE AREA.--68.5 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--Low-flow partial-record station water years 1963-69, 1973, 1979-96. November 1992 to September 1996 (gage height and discharge measurements only), October 1996 to current year.

GAGE.--Water-stage recorder, velocity meter (since June 2004), and crest-stage gage. Datum of gage is 162 ft above NGVD of 1929 (from Corps of Engineers' topographic map).

REMARKS.--Records fair, except estimated daily discharges, which are poor. Flow includes sewage effluent from several treatment plants upstream of gage. Discharges may be affected by backwater from the Passaic River when it reaches high stages. Records computed using a stage-discharge rating prior to Mar 17, 2005. Records for Mar 17, 2005 and thereafter, computed using an index-velocity rating. Several measurements of water temperature were made during the year. Satellite telemetry at station.

## 01381800 WHIPPANY RIVER NEAR PINE BROOK, NJ—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**  
**DAILY MEAN VALUES**  
[*e*, estimated]

<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>	23	116	319	180	164	73	52	63	51	281	53	70
<b>2</b>	19	102	358	165	152	75	51	58	142	206	49	118
<b>3</b>	19	86	295	288	160	84	49	57	400	162	47	348
<b>4</b>	21	75	226	487	251	77	98	56	536	139	54	409
<b>5</b>	22	67	183	475	337	76	78	53	432	160	45	355
<b>6</b>	22	63	157	402	352	77	65	50	314	217	40	284
<b>7</b>	33	74	139	306	278	75	58	48	236	193	41	211
<b>8</b>	197	66	126	238	210	73	106	47	293	147	41	148
<b>9</b>	1,070	62	111	195	179	70	198	47	264	118	38	103
<b>10</b>	1,260	107	107	169	160	78	128	49	204	126	38	74
<b>11</b>	1,050	82	e103	150	150	79	84	49	156	115	91	59
<b>12</b>	899	67	96	227	145	88	66	160	120	116	46	51
<b>13</b>	1,100	62	e92	281	153	102	53	178	96	233	37	48
<b>14</b>	1,330	61	e78	257	134	90	50	183	79	213	35	91
<b>15</b>	1,300	61	e70	310	154	72	67	142	86	145	68	198
<b>16</b>	1,050	72	e435	288	178	67	55	133	68	101	64	266
<b>17</b>	804	208	e745	234	210	62	51	169	59	78	42	250
<b>18</b>	668	220	e615	258	261	59	e49	150	55	70	37	200
<b>19</b>	537	186	e475	456	199	57	46	130	52	146	35	143
<b>20</b>	400	137	419	474	142	55	39	120	54	84	36	94
<b>21</b>	277	106	314	433	118	54	41	101	50	72	36	67
<b>22</b>	194	184	e220	357	110	54	55	88	47	81	33	57
<b>23</b>	194	251	175	299	105	53	219	73	45	319	32	54
<b>24</b>	180	225	153	325	100	52	330	63	115	343	32	56
<b>25</b>	220	176	144	303	91	52	311	58	248	227	35	52
<b>26</b>	320	128	237	258	84	57	225	58	270	113	87	46
<b>27</b>	302	100	299	207	e78	55	148	58	237	79	106	44
<b>28</b>	247	91	260	177	73	52	102	54	231	79	194	44
<b>29</b>	192	83	214	166	---	51	81	49	384	79	149	87
<b>30</b>	154	183	228	176	---	51	67	49	359	63	186	59
<b>31</b>	131	---	203	174	---	51	---	46	---	56	114	---
<b>Total</b>	14,235	3,501	7,596	8,715	4,728	2,071	3,022	2,639	5,683	4,561	1,941	4,086
<b>Mean</b>	459	117	245	281	169	66.8	101	85.1	189	147	62.6	136
<b>Max</b>	1,330	251	745	487	352	102	330	183	536	343	194	409
<b>Min</b>	19	61	70	150	73	51	39	46	45	56	32	44

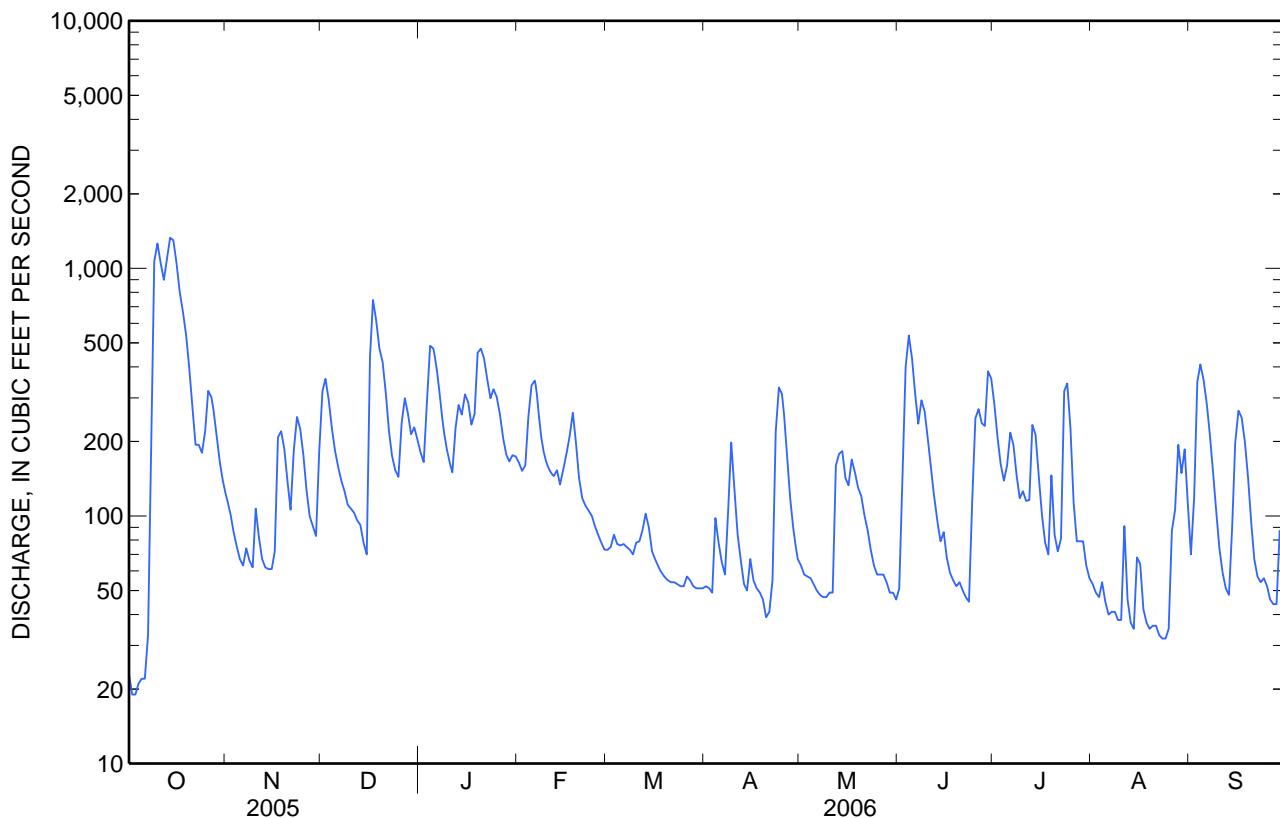
**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2006, BY WATER YEAR (WY)**

	<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>	148	126	230	184	177	197	215	159	157	90.8	87.7	104
<b>Max</b>	459	265	696	281	274	291	347	274	436	202	255	258
(WY)	(2006)	(2004)	(1997)	(2006)	(1997)	(1999)	(2005)	(1998)	(2003)	(2004)	(2000)	(1999)
<b>Min</b>	28.7	32.8	33.6	43.3	39.7	66.8	97.6	69.4	37.7	23.7	30.8	30.2
(WY)	(2002)	(2002)	(1999)	(2002)	(2002)	(2006)	(2002)	(2005)	(1999)	(1999)	(2005)	(2005)

**SUMMARY STATISTICS**

	<b>Calendar Year 2005</b>	<b>Water Year 2006</b>		<b>Water Years 1997 - 2006</b>	
<b>Annual total</b>	63,793		62,778		
<b>Annual mean</b>	175		172		156
<b>Highest annual mean</b>				236	1997
<b>Lowest annual mean</b>				68.7	2002
<b>Highest daily mean</b>	1,330	Oct 14	1,330	Oct 14	1,820 Oct 20, 1996
<b>Lowest daily mean</b>	17	Sep 8	19	Oct 2, 3	17 Aug 2, 1999
<b>Annual seven-day minimum</b>	18	Sep 6	23	Oct 1	17 Aug 2, 1999
<b>Maximum peak flow</b>			1,400	Oct 15	2,080 Oct 20, 1996
<b>Maximum peak stage</b>			8.68	Oct 15	<sup>a</sup> 9.22 Oct 22, 1996
<b>10 percent exceeds</b>	432		333		360
<b>50 percent exceeds</b>	100		110		94
<b>90 percent exceeds</b>	25		47		30

<sup>a</sup> Stage on Oct 20, 1996 was probably higher.



**01381800 WHIPPANY RIVER NEAR PINE BROOK, NJ—Continued****WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 1963 to current year.

REMARKS.--Total nitrogen (00600) equals the sum of filtered ammonia plus organic nitrogen (00623), filtered nitrite plus nitrate nitrogen (00631), and total particulate nitrogen (49570). Bacteria samples were collected synoptically over a 30-day period during the summer.

COOPERATIVE NETWORK SITE DESCRIPTOR: Watershed Integrator and Low-Level Mercury Assessment special study site, New Jersey Department of Environmental Protection (NJDEP) Watershed Management Area 6. The sample on Oct. 31 was part of the low-level mercury assessment.

COOPERATION.--Physical measurements and samples for laboratory analyses were provided by personnel of the NJDEP. Bacteria samples were provided by the local county health department under the direction of the NJDEP through the County Environmental Health Act. Determinations of filtered ammonia, filtered orthophosphorus, BOD, total suspended residue, ammonia+organic nitrogen in bed sediment, phosphorous in bed sediment, fecal coliform, E. coli, and enterococcus bacteria were performed by the NJ Department of Health and Senior Services.

**WATER-QUALITY DATA  
WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 1 of 4

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

Date	Time	Sample type	Turbidity	UV	UV	Baro-	Dis-	pH,	Specif.	
			Instan-	white	absorb-			solved	water,	
		stante-	stante-	light,	ance,	metric	oxy-	oxy-	unfltrd	tance,
		dis-	dis-	det ang	254 nm,	280 nm,	pres-	dissolved	field,	Temper-
		charge,	charge,	90+/-30	wat flt	wat flt	sure,	oxygen,	std	ature,
		corrctd	cfs	NTRU	/cm	/cm	mm Hg	mg/L	units	wat unf
		(00061)	(63676)	(50624)	(50624)	(61726)	(00025)	(00300)	(00400)	uS/cm
<b>Oct</b>										
31...	1245	Field Blank	--	--	--	--	--	--	--	--
31...	1300	Environmental	--	2.6	--	--	760	7.9	68	7.4
<b>Nov</b>										
03...	1100	Environmental	83	3.0	.222	.170	764	8.2	72	7.3
<b>Feb</b>										
07...	1100	Environmental	280	4.4	.190	.144	757	10.7	80	7.5
<b>May</b>										
03...	1030	Environmental	54	5.6	.166	.127	756	6.9	69	7.5
<b>Aug</b>										
15...	1045	Environmental	49	19	.153	.113	756	6.2	73	7.5

## 01381800 WHIPPANY RIVER NEAR PINE BROOK, NJ—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 2 of 4

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

Date	Temper- ature, water, deg C (00010)	Hard- ness, water, mg/L as CaCO <sub>3</sub> (00900)	Calcium water, filtrd, mg/L (00915)	Magnes- ium, water, filtrd, mg/L (00925)	Potas- sium, water, filtrd, mg/L (00935)	Sodium, water, filtrd, mg/L (00930)	ANC, wat unf			Chlor- ide, lab, mg/L as CaCO <sub>3</sub> (90410)	Fluor- ide, water, filtrd, mg/L (00950)	Silica, water, filtrd, mg/L (00955)	Sulfate water, filtrd, mg/L (00945)	Residue water, filtrd, sum of consti- tuents mg/L (70301)	Residue on evap. at 180degC wat flt mg/L (70300)
							fixed pt	end pt	Chlor- ide, water, mg/L (00940)						
<b>Oct</b>															
31...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
31...	8.8	--	--	--	--	--	--	--	--	--	--	--	--	--	
<b>Nov</b>															
03...	9.6	170	42.3	14.7	3.66	52.6	76	115	.10	16.3	29.1	328	339		
<b>Feb</b>															
07...	2.8	99	26.0	8.38	2.07	69.0	51	131	E.08	8.2	17.2	295	311		
<b>May</b>															
03...	15.3	160	42.3	14.2	3.09	59.0	82	135	E.09	9.0	21.0	340	378		
<b>Aug</b>															
15...	22.5	150	39.0	13.8	3.75	47.4	78	114	E.08	13.0	22.3	310	389		

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 3 of 4

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

Date	Residue total at 105 deg. C, sus- pended, mg/L (00530)	Ammonia + org-N, water, filtrd, mg/L (00623)		Nitrite + nitrate, water, filtrd, mg/L (00608)		Partic- ulate nitro- gen, susp, water, mg/L (00631)		Total nitro- gen, water, filtrd, mg/L (49570)	Total nitro- gen, water, unfiltrd mg/L (00602)	Ortho- phosphate, water, filtrd, mg/L (00600)	Phos- phorus, water, filtrd, mg/L (00671)	Phos- phorus, water, unfiltrd mg/L (00666)	Total carbon, suspnd sediment total, mg/L (00665)	Inor- ganic carbon, suspnd sediment total, mg/L (00694)	Organic carbon, suspnd sediment total, mg/L (00688)
		mg/L (00623)	as N (00608)	mg/L (00631)	mg/L (49570)	mg/L (00602)	mg/L (00600)	mg/L (00671)	mg/L (00666)	mg/L (00665)	mg/L (00694)	mg/L (00688)	mg/L (00689)	mg/L (00689)	
<b>Oct</b>															
31...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
31...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
<b>Nov</b>															
03...	10	.67	.146	1.97	.09	2.6	2.7	.117	.14	.18	1.0	<.1	1.0		
<b>Feb</b>															
07...	<1	.37	.020	.68	.08	1.0	1.1	.021	E.03	.05	.5	<.1	.5		
<b>May</b>															
03...	8	.60	.162	1.57	.11	2.2	2.3	.082	.10	.19	.8	<.1	.8		
<b>Aug</b>															
15...	31	.57	.120	2.00	.15	2.6	2.7	.147	.16	.30	1.8	<.1	1.8		

## 01381800 WHIPPANY RIVER NEAR PINE BROOK, NJ—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER**  
**2006**

Part 4 of 4

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

Date	BOD, Organic carbon, water, filtrd, mg/L (00681)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Boron, water, filtrd, ug/L (01020)	Mercury water, filtrd, low level ng/L (50287)
<b>Oct</b>				
31...	--	--	--	.12
31...	--	--	--	1.32
<b>Nov</b>				
03...	5.1	<1.0	70	--
<b>Feb</b>				
07...	4.4	<1.0	34	--
<b>May</b>				
03...	4.1	<1.0	67	--
<b>Aug</b>				
15...	4.6	E1.7	75	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 1 of 4

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

Date	Time	Ammonia pH bed sedimnt std units (70310)	+ org-N, bed sed total, mg/kg (00626)	Phos- phorus, bed sedimnt total, mg/kg (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, ug/g (01170)	Lead, bed sedimnt recover -able, ug/g (01052)
Aug 15...	1045	6.90	260	4,000	4.0	<.2	1.1	.080	5.0	2.6	5	5,600	14

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 2 of 4

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

Date	Mangan- ese, bed sedimnt recover -able, ug/g (01053)	Mercury bed sedimnt recover -able, ug/g (71921)	Nickel, bed sedimnt recover -able, ug/g (01068)	Sele- nium, bed sedimnt recover -able, ug/g (64848)	Zinc, bed sedimnt recover -able, ug/g (01093)	1,2-Di- methyl- naphth- alene, <2 mm, ug/kg (49403)	1,6-Di- methyl- naphth- alene, <2 mm, ug/kg (49404)	1Methyl -9H- naphth- ene, <2 mm, ug/kg (49398)	1- Methyl- phenan- threne, bed sed bed sed <2 mm, ug/kg (49410)	1- Methyl- pyrene, bed sed bed sed <2 mm, ug/kg (49388)	236Tri- methyl- naphth- ene, <2 mm, ug/kg (49405)	2,6-Di- methyl- naphth- ene, <2 mm, ug/kg (49406)	2-Ethyl naphth- ene, <2 mm, ug/kg (49948)
Aug 15...	73	.068	4.0	.2	30	E4	E8	E11	E17	E19	E9	E12	<53

## 01381800 WHIPPANY RIVER NEAR PINE BROOK, NJ—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 3 of 4

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

Date	2-Methyl-anthra-cene, bed sed <2 mm, bs ug/kg (49435)	4H-Cyclo-lopenta-[def]-phenan-threne, bed sed <2 mm, wsv nat ug/kg (49411)	9H-Fluor-naphth-ene, bed sed <2 mm, wsv nat ug/kg (49399)	Ace-naphth-ylene, bed sed <2 mm, wsv nat ug/kg (49429)	Ace-naphth-ylene, bed sed <2 mm, wsv nat ug/kg (49428)	Anthra-cene, bed sed <2 mm, wsv nat field, ug/kg (49434)	Benzo-[a]-anthra-cene, bed sed <2 mm, wsv nat ug/kg (49436)	Benzo-[a]-pyrene, bed sed <2 mm, wsv nat ug/kg (49389)	Benzo-[b]-fluor-anthene, bed sed <2 mm, wsv nat ug/kg (49458)	Benzo-[ghi]-peryl-anthene, bed sed <2 mm, wsv nat ug/kg (49408)	Benzo-[k]-fluor-anthene, bed sed <2 mm, wsv nat ug/kg (49397)	Chry-sene, bed sed <2 mm, wsv nat ug/kg (49450)	Dibenzo-[a,h]-anthra-cene, bed sed <2 mm, wsv nat ug/kg (49461)
Aug 15...	E22	E25	E12	E5	E20	E33	120	120	190	E74	73	130	E33

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 4 of 4

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

Date	Fluor-anthene, bed sed <2 mm, wsv nat field, <2 mm ug/kg (49466)	Indeno-[1,2,-3-cd]-pyrene, bed sed bed sed wsv nat ug/kg (49390)	Iso-phorone, bed sed <2 mm, wsv nat field, <2 mm ug/kg (49400)	Naphth-alene, bed sed <2 mm, bed wsv nat wsv nat ug/kg (49402)	p-PCBs, bed bed sedimnt ug/kg (39519)	Cresol, bed sed <2 mm, wsv nat ug/kg (49451)	Phenan-threne, bed sed <2 mm, wsv nat field, <2 mm ug/kg (49409)	Phenan-threne, bed sed <2 mm, wsv nat field, <2 mm ug/kg (49393)	Pyrene, bed sed <2 mm, wsv nat field, <2 mm ug/kg (49387)	Bed sediment, dry svd sve dia percent <.063mm (80164)	Bed sediment, falldia dst wat percent <.004mm (80157)	
Aug 15...	260	E85	<53	E4	18.3	140	93	<53	230	3	2	

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

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

Date	Time	Instan-taneous dis-charge, cfs (00061)	Enter-occi, m-E			E coli, m-TEC			Fecal coliform, ECbroth		
			Temper-ature, deg C (00010)	MF, water, col/ (31649)	100 mL (31649)	MF, water, col/ (31633)	100 mL (31633)	water, col/ MPN/ (31615)	100 mL (31615)		
Jul 12...	1120	84	24.4	70	10	110					
19...	1100	161	--	3,700	6,000	16,000					
26...	1222	106	23.7	110	200	800					
Aug 02...	1015	47	28.2	100	30	270					
09...	1015	37	23.1	20	<10	80					