

CHRISTINA RIVER BASIN

01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA

LOCATION.--Lat 40°04'22", long 75°51'40", Chester County, Hydrologic Unit 02040205, on right bank 100 ft upstream from bridge on SR 4007 at Birdell, 0.4 mi downstream from Two Log Run, and 3.0 mi southeast of Honey Brook.

DRAINAGE AREA.--18.7 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1960 to current year.

REVISED RECORDS.--WDR PA-73-1: 1972(P).

GAGE.--Water-stage recorder and crest-stage gage. Prior to July 1990, water-stage recorder at site 130 ft downstream on right bank at same datum. Datum of gage is 591.20 ft above sea level.

REMARKS.--Records fair, except those above 1,000 ft³/s, which are poor. 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 500 ft³/s and maximum (*):

Date	Time	Discharge ft ³ /s	Gage Height (ft)	Date	Time	Discharge ft ³ /s	Gage Height (ft)
Jan. 3	1300	753	6.47	Mar. 22	0500	602	6.07
Jan. 18	1930	753	6.47	Sept. 16	1800	*2,950	*10.30

REVISIONS.--The peak discharges and annual maximum (*) reported for water years 1972, 1973, 1975, 1978, 1979, 1984, 1985, 1987, 1988, 1996, and 1997 have been revised as shown in the following table. In addition, the following daily mean discharge figures have been revised: 1,400 ft³/s, June 22, 1972; 1,350 ft³/s, Jan. 19, 1996; 1,170 ft³/s, Oct. 19, 1996.

Water Year	Date	Discharge ft ³ /s	Gage Height (ft)	Water Year	Date	Discharge ft ³ /s	Gage Height (ft)
1972	June 22, 1972	*3,660	*11.41	1984	July 1, 1984	*3,650	*11.40
	Feb. 13, 1972	2,240	7.40		Dec. 12, 1983	2,180	8.97
1973	July 3, 1973	*2,550	*9.62		July 7, 1984	2,860	10.14
	Nov. 14, 1972	1,490	7.81	1985	Sept. 27, 1985	*1,890	*8.48
1975	July 14, 1975	*2,300	*9.18	1987	Sept. 8, 1987	*3,300	*10.86
	Apr. 26, 1975	1,010	6.99	1988	July 21, 1988	*2,920	*10.24
1976	Jan. 26, 1976	*1,090	*7.13		May 19, 1988	1,590	7.98
1978	Jan. 26, 1978	*2,760	9.98	1989	May 6, 1989	*1,290	*7.49
1979	Jan. 24, 1979	*2,410	*9.37	1996	Jan. 19, 1996	*3,800	*11.62
	Jan. 21, 1979	1,400	7.67		June 17, 1996	2,940	10.28
	Feb. 26, 1979	1,230	7.39	1997	Oct. 19, 1996	*2,960	*10.32
	Sept. 22, 1979	2,120	8.87				
1982	June 17, 1982	*1,270	*7.45				
	Jan. 4, 1982	1,120	7.20				
	Feb. 3, 1982	1,080	7.12				

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DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	7.0	8.2	6.8	13	52	20	13	7.9	6.0	2.3	3.0
2	7.0	7.7	7.8	12	57	23	20	12	8.1	5.8	2.5	2.8
3	6.8	7.6	8.0	231	36	20	17	13	9.2	6.0	2.3	3.0
4	11	7.6	8.0	e20	22	45	17	14	8.5	5.4	1.9	2.3
5	11	7.8	7.4	e15	17	25	21	14	7.6	4.8	1.9	6.2
6	8.6	7.6	7.3	11	15	30	17	13	7.6	4.9	2.2	13
7	8.3	7.4	7.7	10	15	28	16	13	7.9	4.4	1.8	35
8	55	7.5	9.1	8.6	24	17	15	15	7.4	4.2	2.1	8.6
9	50	8.2	10	83	21	16	33	13	7.4	4.3	2.9	6.1
10	103	8.2	8.4	31	17	17	75	12	7.2	4.0	2.0	15
11	20	13	8.1	13	15	15	40	11	7.9	4.1	2.5	6.1
12	13	9.6	7.3	19	18	14	52	11	7.4	4.6	1.9	4.6
13	12	8.2	7.3	26	34	13	26	15	7.9	4.5	2.3	4.5
14	12	7.7	7.5	17	18	15	23	12	10	4.3	15	4.3
15	11	7.5	7.4	88	16	20	20	11	9.5	3.7	5.0	5.9
16	8.8	7.7	7.6	49	16	23	22	9.8	7.6	3.2	3.9	1040
17	7.7	8.0	7.6	78	18	51	22	10	7.8	3.1	3.5	186
18	7.4	7.4	7.4	328	82	37	19	11	9.9	3.0	3.0	22
19	8.6	7.5	6.6	67	32	20	18	11	7.4	3.5	3.0	14
20	8.5	7.7	6.6	26	21	17	18	11	6.9	3.2	2.9	10
21	8.2	7.4	7.3	23	17	28	18	9.5	7.6	3.7	4.6	15
22	7.2	7.0	8.6	32	14	248	22	9.1	7.7	4.6	3.6	34
23	6.6	7.1	7.4	29	15	35	21	13	6.8	4.0	3.5	16
24	6.6	7.2	7.4	139	14	29	20	16	6.5	3.2	3.2	11
25	6.6	7.4	6.8	40	14	24	17	14	6.4	3.4	3.0	9.1
26	6.9	28	6.3	26	14	21	16	10	6.2	3.5	12	8.6
27	7.2	14	6.3	21	13	19	14	9.4	6.1	3.3	6.7	9.2
28	7.5	9.5	7.3	19	31	21	14	9.0	6.3	2.5	3.8	10
29	7.9	8.8	8.2	16	---	20	14	8.3	6.3	2.9	3.2	9.3
30	7.7	8.7	8.5	14	---	17	13	7.6	5.5	2.5	3.0	60
31	7.0	---	7.9	13	---	17	---	7.6	---	2.5	3.2	---
TOTAL	456.3	266.0	237.3	1511.4	639	977	680	358.3	226.5	123.1	114.7	1574.6
MEAN	14.7	8.87	7.65	48.8	22.8	31.5	22.7	11.6	7.55	3.97	3.70	52.5
MAX	103	28	10	328	82	248	75	16	10	6.0	15	1040
MIN	6.6	7.0	6.3	6.8	13	13	13	7.6	5.5	2.5	1.8	2.3
CFSM	.79	.47	.41	2.61	1.22	1.69	1.21	.62	.40	.21	.20	2.81
IN.	.91	.53	.47	3.01	1.27	1.94	1.35	.71	.45	.24	.23	3.13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1999, BY WATER YEAR (WY)

MEAN	17.0	24.8	29.2	35.9	37.4	41.3	33.3	25.9	22.2	20.8	12.6	17.0
MAX	68.5	58.6	107	136	85.1	110	83.8	74.6	96.6	106	25.8	63.1
(WY)	1997	1973	1997	1996	1979	1994	1983	1989	1972	1984	1990	1960
MIN	5.74	7.35	7.65	7.03	14.3	15.3	11.7	8.84	6.46	3.79	3.31	3.62
(WY)	1965	1982	1999	1981	1969	1981	1963	1963	1963	1963	1963	1964

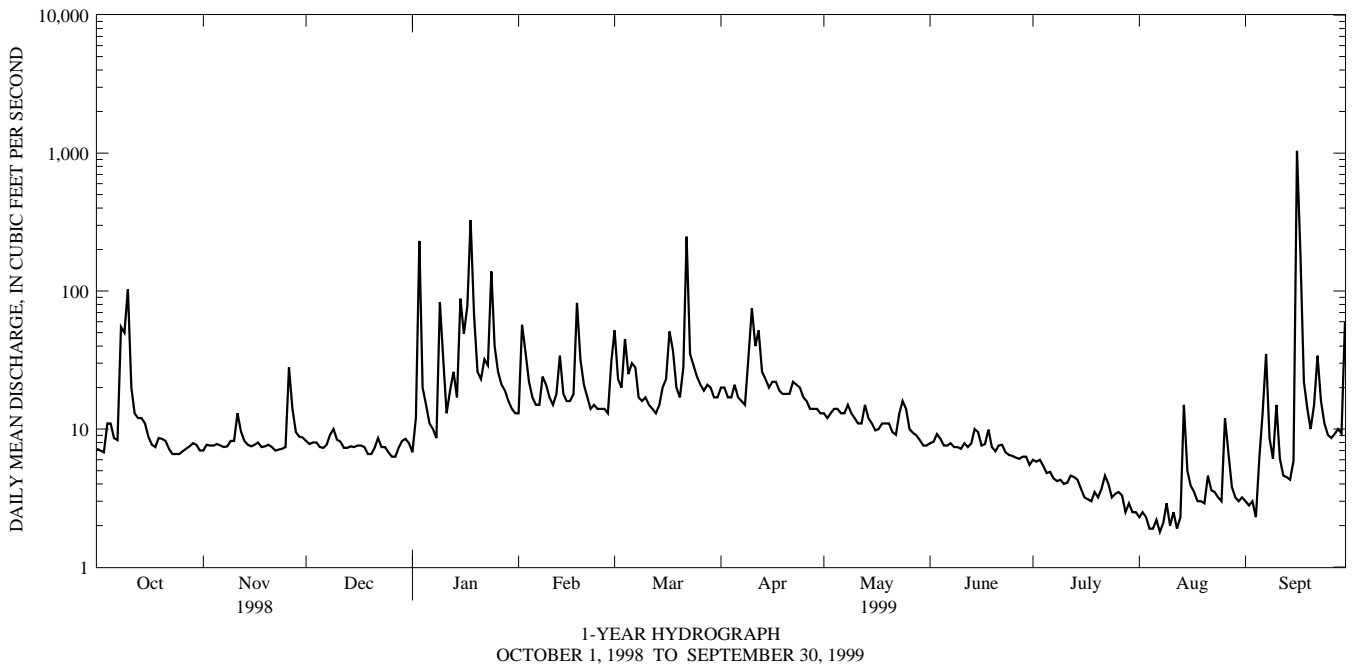
e Estimated.

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SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1960 - 1999	
ANNUAL TOTAL	8444.8		7164.2			
ANNUAL MEAN	23.1		19.6		26.3	
HIGHEST ANNUAL MEAN					46.3	
LOWEST ANNUAL MEAN					12.8	
HIGHEST DAILY MEAN	242	Mar 21	1040	Sep 16	1400	Jun 22 1972
LOWEST DAILY MEAN	6.3	Dec 26,27	1.8	Aug 7	1.7	Aug 19 1963
ANNUAL SEVEN-DAY MINIMUM	6.8	Sep 27	2.1	Aug 2	2.1	Sep 7 1966
INSTANTANEOUS PEAK FLOW			a2950	Sep 16	a3800	Jan 19 1996
INSTANTANEOUS PEAK STAGE			10.30	Sep 16	11.62	Jan 19 1996
INSTANTANEOUS LOW FLOW			1.7	Aug 3b	1.7	Aug 15 1963
ANNUAL RUNOFF (CFSM)	1.24		1.05		1.41	
ANNUAL RUNOFF (INCHES)	16.80		14.25		19.13	
10 PERCENT EXCEEDS	49		29		41	
50 PERCENT EXCEEDS	13		9.1		15	
90 PERCENT EXCEEDS	7.2		3.5		6.9	

a From rating curve extended above 1,000 ft³/s.
 b Also Aug. 4, 6-8, 12 13.



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01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1965 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
OCT 1998 19...	1300	80020	1028	9.6	9.0	7.6	320	16.0	100	26	9.1
DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM AD-SORP-TION RATIO (00931)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	ANC WATER UNFLTRD IT FIELD (MG/L AS CAC03) (00419)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
OCT 1998 19...	4.7	.7	17	26	68	27	<.10	16	24	.026	4.63
DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	PHOS-PHORUS ORTHO, SOLVED (MG/L AS P) (00671)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C) (00693)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (µG/G AS AS) (01003)	BORON, DIS-SOLVED (µG/L AS B) (01020)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CD) (01028)	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)
OCT 1998 19...	.020	.076	1.8	185	28	<1	<1	61	<1.0	<1	<1.0
DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CU) (01029)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, FM BOT-TOM MA-TERIAL (µG/G AS CU) (01043)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS FE) (01170)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS PB) (01052)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS MN) (01053)	MERCURY DIS-SOLVED (µG/L AS HG) (71890)	
OCT 1998 19...	11	1.3	0	28	5800	<1.0	<10	23	130	<.1	
DATE	MERCURY RECOV. FM BOT-TOM MA-TERIAL (µG/G AS HG) (71921)	MOLYB-DENUM, DIS-SOLVED (µG/L AS MO) (01060)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS ZN) (01093)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39333)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39351)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39383)	ENDO-SULFAN I TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39389)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39393)	
OCT 1998 19...	.01	<1.0	1.4	<20	20	<.200	<3.00	.570	<.200	<.200	
DATE	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG) (39423)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39413)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39343)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (µG/KG) (39481)	MIREX, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39758)	P,P'-DDD, RECOVER IN BOT-TOM MA-TERIAL (µG/KG) (39363)	P,P'-DDE, RECOVER IN BOT-TOM MA-TERIAL (µG/KG) (39368)	P,P'-DDT, RECOVER IN BOT-TOM MA-TERIAL (µG/KG) (39373)	PCB, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39519)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39403)	
OCT 1998 19...	<.200	<.200	<.200	<2.50	<.200	<.500	.200	<.500	5.80	<50.0	

CHRISTINA RIVER BASIN

01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	AGENCY ANALYZING SAMPLE NUMBER (00028)	AGENCY COLLECTING SAMPLE NUMBER (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	COLI- FORM, FECAL, 0.45 µM-MF (COLS./ 100 ML) (31616)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML) (31633)
MAR 1999										
22...	1515	1028	1028	100	10.9	7.2	203	6.5	1100	--
APR										
09...	1035	1028	1028	16	9.8	7.0	288	12.0	63	--
MAY										
05...	1110	1028	1028	14	10.3	7.3	--	14.5	K2300	--
JUN										
04...	1025	1028	1028	9.2	7.2	7.1	327	19.0	4800	--
JUL										
19...	1325	1028	1028	4.5	--	7.7	405	25.0	>600	--
AUG										
14...	1123	1028	1028	25	--	--	294	23.0	>6000	>8000
16...	1145	1028	1028	4.5	6.5	7.6	382	23.0	>6000	6600
26...	0817	1028	1028	13	--	--	219	19.0	>12000	>16000
SEP										
13...	1145	1028	1028	5.1	7.8	7.4	372	19.0	10000	K1900

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01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

Date	10/19/98
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (Flatworms)	
Tricladida	
Planariidae	2
Mollusca	
Gastropoda (Snails)	
Basommatophora	
Ancylidae	
<i>Ferrissia</i>	6
Annelida (Segmented Worms)	
Oligochaeta	4
Arthropoda	
Acariformes	
Hydrachnidia (Water Mites)	12
Insecta	
Ephemeroptera (Mayflies)	
Baetidae	
<i>Baetis</i>	2
Caenidae	
<i>Caenis</i>	2
Ephemeridae	
<i>Ephemera</i>	11
Ephemerellidae	
<i>Serratella</i>	2
Heptageniidae	
<i>Stenonema</i>	77
Isonychiidae	
<i>Isonychia</i>	32
Leptophlebiidae	1
Odonata (Dragonflies and Damselflies)	
Coenagrionidae	
<i>Argia</i>	1
Gomphidae	
<i>Gomphus</i>	3
Plecoptera (Stoneflies)	
Taeniopterygidae	
<i>Taeniopteryx</i>	6
Megaloptera	
Corydalidae (Fishflies And Dobsonflies)	
<i>Corydalus</i>	1
<i>Nigronia</i>	1
Sialidae (Alderflies)	
<i>Sialis</i>	3

CHRISTINA RIVER BASIN

01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/19/98
Benthic Macroinvertebrate	Count
Trichoptera (Caddisflies)	
Hydropsychidae	
<i>Cheumatopsyche</i>	205
<i>Hydropsyche</i>	310
Hydroptilidae	
<i>Hydroptila</i>	10
Philopotamidae	
<i>Chimarra</i>	10
Polycentropodidae	
<i>Polycentropus</i>	4
Psychomyiidae	
<i>Psychomyia</i>	1
Coleoptera (Beetles)	
Elmidae (Rifle Beetles)	4
<i>Dubiraphia</i>	5
<i>Macronychus</i>	8
<i>Optioservus</i>	30
<i>Stenelmis</i>	167
Hydrophilidae	
<i>Berosus</i>	1
Diptera (True Flies)	
Chironomidae (Midges)	347
Empididae (Dance Flies)	
<i>Hemerodromia</i>	13
Simuliidae (Black Flies)	
<i>Simulium</i>	2
Tabanidae	
<i>Tabanus</i>	3
Tipulidae (Crane Flies)	
<i>Antocha</i>	46
<i>Hexatoma</i>	8
Total count	1,453
Total number of taxa	36