

CHRISTINA RIVER BASIN

01479820 RED CLAY CREEK NEAR KENNETT SQUARE, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 39°49'00", long 75°41'31", Chester County, Hydrologic Unit 02040205, on left bank along SR 82 (Creek Road), and 3.0 mi south of the intersection of SR 82 and U.S. Highway 1 at Kennett Square.

DRAINAGE AREA.--28.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 196.02 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. Some regulation upstream of gage. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge ft ³ /s	Gage Height (ft)	Date	Time	Discharge ft ³ /s	Gage Height (ft)
Feb. 22	1715	1,610	6.76	Sept. 15	0930	*19,700	*15.30
Mar. 20	2100	1,340	6.36	Sept. 19	0300	1,020	5.65
June 20	1945	3,660	8.04	Sept. 23	0900	1,890	6.68

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	19	18	123	33	37	40	31	59	43	21	22
2	11	18	18	72	33	286	37	30	36	38	22	41
3	9.0	16	18	74	28	172	36	26	37	62	56	25
4	12	15	17	70	47	58	35	25	224	41	32	51
5	6.9	15	21	42	29	231	35	26	98	39	40	29
6	5.7	63	20	42	25	424	30	29	54	39	29	21
7	6.1	24	19	37	27	99	35	30	165	40	23	18
8	9.2	19	19	38	24	129	41	32	90	38	31	17
9	5.9	20	19	39	24	203	60	33	60	34	64	16
10	20	18	18	34	25	74	43	32	49	34	237	16
11	246	18	229	30	24	51	166	30	43	38	45	16
12	59	62	144	28	23	53	72	29	55	32	33	18
13	22	44	87	28	22	63	47	28	69	30	26	59
14	16	24	178	27	21	53	41	27	52	29	24	53
15	17	20	39	26	21	46	38	27	43	28	22	4150
16	101	64	30	25	15	46	37	31	39	28	24	117
17	44	222	30	26	21	60	34	32	38	26	27	51
18	19	111	27	24	27	46	37	28	107	25	22	96
19	15	44	27	24	26	39	36	28	52	27	20	394
20	15	35	97	25	28	314	33	26	1120	23	20	59
21	14	31	39	23	31	224	31	37	346	23	19	46
22	14	37	28	22	676	68	35	30	96	22	26	42
23	13	33	28	21	576	53	33	28	73	26	22	518
24	13	28	27	21	184	48	33	33	63	28	17	71
25	13	27	184	21	79	45	34	28	55	24	16	52
26	58	27	72	21	52	49	62	204	52	22	16	47
27	21	33	41	20	43	51	37	55	49	22	19	64
28	17	22	36	21	40	43	32	46	47	22	20	141
29	28	20	34	22	---	45	30	38	45	22	19	55
30	52	20	33	21	---	68	30	33	45	20	59	46
31	35	---	33	22	---	53	---	33	---	21	29	---
TOTAL	929.8	1149	1630	1069	2204	3231	1290	1145	3361	946	1080	6351
MEAN	30.0	38.3	52.6	34.5	78.7	104	43.0	36.9	112	30.5	34.8	212
MAX	246	222	229	123	676	424	166	204	1120	62	237	4150
MIN	5.7	15	17	20	15	37	30	25	36	20	16	16

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2003, BY WATER YEAR (WY)

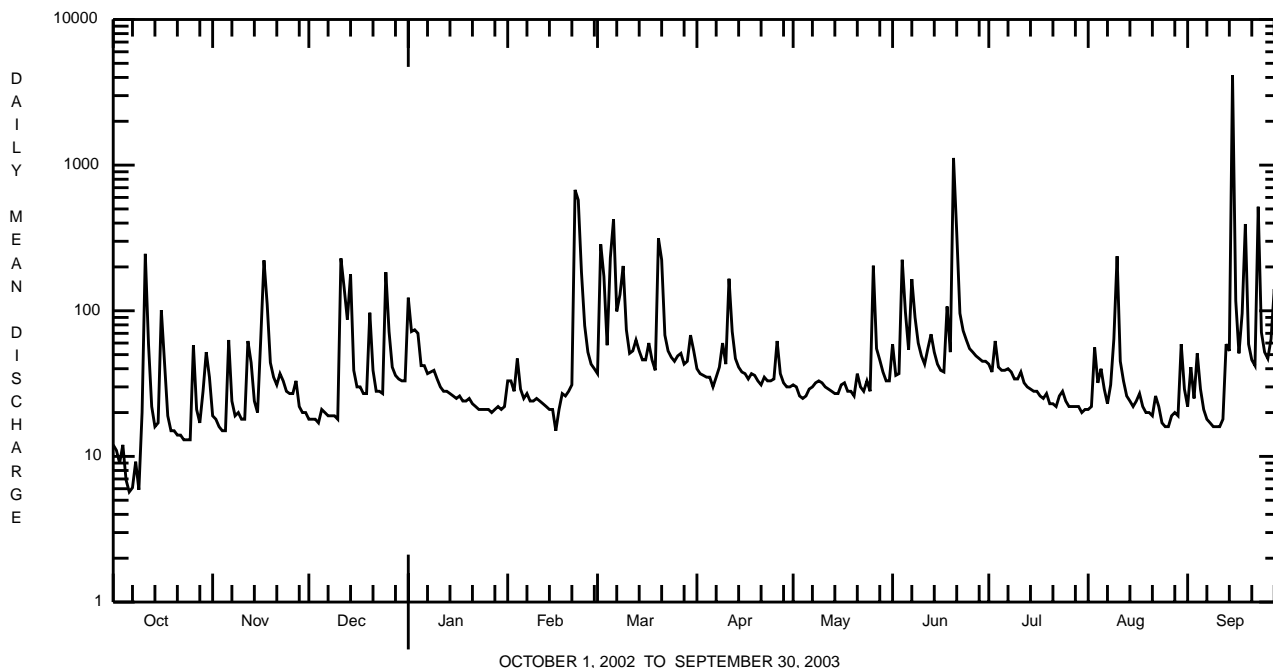
MEAN	26.8	31.5	41.1	47.2	45.0	62.9	45.5	40.3	37.5	27.0	22.4	40.6
MAX	75.5	61.3	128	96.1	81.2	116	85.5	79.2	112	94.5	55.2	212
(WY)	1997	1997	1997	1996	1994	1994	1993	1989	2003	1989	1996	2003
MIN	10.8	10.9	12.9	22.0	16.6	30.5	21.7	21.7	16.0	12.0	5.84	8.83
(WY)	1995	1999	1999	1992	2002	2002	2002	1999	1995	1995	1995	1995

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SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1988 - 2003	
ANNUAL TOTAL	9236.1		24385.8			
ANNUAL MEAN	25.3		66.8		39.2	
HIGHEST ANNUAL MEAN					66.8	2003
LOWEST ANNUAL MEAN					18.9	2002
HIGHEST DAILY MEAN	246	Oct 11	4150	Sep 15	a4150	Sep 15 2003
LOWEST DAILY MEAN	4.6	Aug 26	5.7	Oct 6	0.86	Sep 3 1995
ANNUAL SEVEN-DAY MINIMUM	5.2	Aug 8	7.8	Oct 3	1.1	Sep 2 1995
MAXIMUM PEAK FLOW			a19700	Sep 15	a19700	Sep 15 2003
MAXIMUM PEAK STAGE			b15.30	Sep 15	b15.30	Sep 15 2003
10 PERCENT EXCEEDS	43		96		60	
50 PERCENT EXCEEDS	17		33		26	
90 PERCENT EXCEEDS	7.9		18		12	

a From rating curve extended above 2,580 ft³/s from slope-conveyance determination of discharge at gage height 15.30 ft.
 b From outside highwater mark.



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01479820 RED CLAY CREEK NEAR KENNETT SQUARE, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 430-470.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd recover -able, mg/L (00916)	Magnesium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 13...	1130	1028	9813	38	30	11.5	7.6	335	10.9	130	32.6	12.4	70
JAN 2003 13...	1140	1028	9813	27	30	14.7	7.9	408	.9	150	37.2	14.6	76
MAR 27...	1000	1028	9813	49	30	13.8	8.2	377	9.1	140	33.3	12.9	69
MAY 27...	0900	1028	9813	56	30	10.7	7.3	332	12.0	120	30.7	11.6	74
JUL 07...	1130	1028	9813	40	30	9.0	7.8	365	20.7	140	34.2	13.5	78
SEP 08...	1230	1028	9813	18	30	11.0	8.1	389	17.7	160	38.6	15.2	87

Date	Sulfate water, unfltrd, mg/L (00945)	Residue on evap. at 105degC, suspended, mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recover -able, mg/L (01105)	Copper, water, unfltrd recover -able, mg/L (01042)	Iron, water, unfltrd recover -able, mg/L (01045)
NOV 2002 13...	41.6	276	<2	.090	2.88	.020	--	.228	4.3	8.6	300	<4	470
JAN 2003 13...	42.2	172	6	.030	4.81	<.010	--	.127	5.8	2.3	88	<4	190
MAR 27...	37.9	268	4	<.020	3.84	<.040	.07	.067	4.1	3.6	<200	<10	180
MAY 27...	34.9	266	4	.100	3.15	.100	.11	.161	4.1	6.2	500	<10	750
JUL 07...	34.2	288	<2	<.020	3.98	<.200	.12	.145	4.3	3.9	<200	<10	270
SEP 08...	36.0	298	4	.030	4.93	<.040	.20	.190	5.0	2.8	<200	<10	180

Date	Lead, water, unfltrd recover -able, ug/L (01051)	Manganese, water, unfltrd recover -able, ug/L (01055)	Nickel, water, unfltrd recover -able, ug/L (01067)	Zinc, water, unfltrd recover -able, ug/L (01092)
NOV 2002 13...	<1.0	20	<4.0	7.5
JAN 2003 13...	<1.0	50	<4.0	7.1
MAR 27...	<1.0	30	<50	50
MAY 27...	<1.0	60	<50	10
JUL 07...	<1.0	20	<50	20
SEP 08...	<1.0	20	<50	180

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BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 μm .
Samples represent counts per 100 (approximate) subsamples.

Date	08/28/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	7
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
<u>Gammarus</u> sp	2
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	3
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	9
<u>Hydropsyche</u> sp	31
Philopotamidae	
<u>Chimarra</u> sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	11
<u>Oulimnius</u> sp	2
<u>Stenelmis</u> sp	20
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	3
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	61
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	1
<u>Tipula</u> sp	1
Total Organisms	153