

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA

LOCATION.--Lat 39°57'42", long 75°48'06", Chester County, Hydrologic Unit 02040205, on left bank at bridge on SR 15068 at Modena, and 300 ft upstream from Dennis Run.

DRAINAGE AREA.--55.0 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1970 to current year.

REVISED RECORDS.--WDR PA-74-1: 1971-72(P), 1973. WDR PA-75-1: 1974(m).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 265 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Slight regulation from Rock Run Reservoir 5.6 mi upstream, capacity, 982 acre-ft, and by Lukens Steel Company. Diversion from Rock Run Reservoir for municipal supply of city of Coatesville reenters creek upstream from gage. Satellite and landline telemetry at station.

COOPERATION.--Records of diversion provided by the city of Coatesville.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than 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)
June 6	2330	*833	*5.13	(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	17	21	19	49	25	40	34	29	19	11	26
2	19	16	19	20	45	30	36	96	26	20	11	20
3	19	19	17	20	35	132	33	125	24	18	11	15
4	21	16	20	20	33	49	38	45	25	19	13	14
5	18	16	19	21	30	33	33	37	27	17	13	12
6	19	15	20	39	29	31	32	32	109	17	13	12
7	18	16	20	46	31	30	30	32	261	16	11	11
8	17	15	24	31	30	30	30	30	49	17	12	11
9	19	15	32	28	30	27	31	39	35	16	9.9	10
10	19	16	24	25	28	33	35	43	30	18	11	11
11	19	15	23	117	30	26	31	31	28	15	9.3	15
12	19	15	22	81	30	27	31	37	26	16	11	18
13	19	15	22	38	27	32	31	97	26	14	7.8	20
14	18	15	32	31	28	35	35	e235	67	18	9.1	19
15	27	16	34	30	27	30	32	e60	57	16	8.5	30
16	20	15	24	28	30	29	31	44	40	15	8.6	22
17	23	17	25	26	29	28	29	39	31	15	8.4	20
18	23	15	41	27	28	44	28	175	28	14	8.8	17
19	21	16	31	26	28	44	31	85	29	13	8.0	18
20	22	15	25	29	29	140	28	50	28	15	7.9	16
21	20	16	23	26	30	102	27	40	25	15	7.9	17
22	21	16	22	28	28	45	34	39	24	14	8.0	15
23	21	13	21	28	27	38	32	35	23	13	7.4	15
24	23	15	30	166	27	33	27	34	22	14	22	14
25	20	36	26	106	26	32	28	32	22	15	14	12
26	23	40	23	45	28	39	29	30	21	12	14	33
27	20	23	23	36	27	71	25	33	23	15	9.9	74
28	21	20	22	34	27	42	94	33	26	14	12	62
29	17	20	22	31	---	38	62	33	23	14	35	24
30	16	19	21	35	---	33	37	33	20	12	17	16
31	17	---	20	48	---	36	---	29	---	12	14	---
TOTAL	620	533	748	1285	846	1364	1040	1737	1204	478	364.5	619
MEAN	20.0	17.8	24.1	41.5	30.2	44.0	34.7	56.0	40.1	15.4	11.8	20.6
MAX	27	40	41	166	49	140	94	235	261	20	35	74
MIN	16	13	17	19	26	25	25	29	20	12	7.4	10
CFSM	0.36	0.32	0.44	0.75	0.55	0.80	0.63	1.02	0.73	0.28	0.21	0.38
IN.	0.42	0.36	0.51	0.87	0.57	0.92	0.70	1.17	0.81	0.32	0.25	0.42
(†)	-.3	-.2	-.1	+.4	+.1	+.6	+.1	0	-.1	-1.0	-.8	0

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2002, BY WATER YEAR (WY)

MEAN	54.5	70.2	90.8	101	106	125	116	93.8	80.4	66.8	45.4	54.1
MAX	190	144	306	330	235	308	241	213	302	236	123	186
(WY)	1997	1997	1997	1979	1971	1994	1983	1989	1972	1984	1971	1979
MIN	20.0	17.8	21.5	20.1	30.2	43.0	34.7	41.5	28.4	15.4	11.8	20.6
(WY)	2002	2002	1999	1981	2002	1985	2002	1999	1999	2002	2002	2002

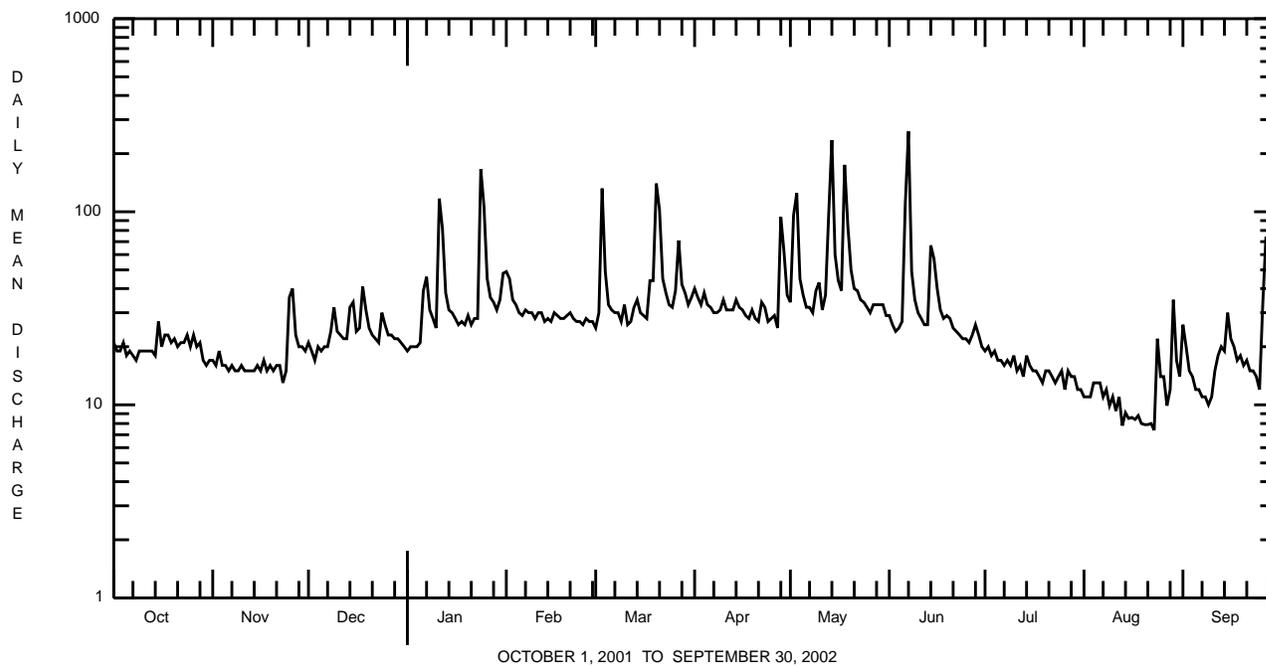
† Change in contents from Rock Run Reservoir, equivalent in cubic feet per second.
e Estimated.

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1970 - 2002	
ANNUAL TOTAL	21060		10838.5			
ANNUAL MEAN	57.7		29.7		83.7	
HIGHEST ANNUAL MEAN					130	1979
LOWEST ANNUAL MEAN					29.7	2002
HIGHEST DAILY MEAN	520	Mar 30	261	Jun 7	4010	Jun 22 1972
LOWEST DAILY MEAN	13	Nov 23	7.4	Aug 23	7.4	Aug 23 2002
ANNUAL SEVEN-DAY MINIMUM	15	Nov 8	8.1	Aug 17	8.1	Aug 17 2002
MAXIMUM PEAK FLOW			833	Jun 6	a9600	Jun 29 1973
MAXIMUM PEAK STAGE			5.13	Jun 6	12.47	Jun 29 1973
ANNUAL RUNOFF (CFSM)	1.05		0.54		1.52	
ANNUAL RUNOFF (INCHES)	14.24		7.33		20.67	
10 PERCENT EXCEEDS	113		43		143	
50 PERCENT EXCEEDS	37		25		55	
90 PERCENT EXCEEDS	17		13		25	

a From rating curve extended above 7,800 ft³/s on basis of slope-area measurement at gage height 11.48 ft.



CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1969 to October 1978, August 1981 to current year.**PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: May 1971 to October 1977, August 1981 to current year.

pH: May 1971 to October 1977, August 1981 to current year.

WATER TEMPERATURES: May 1971 to October 1977, August 1981 to current year.

DISSOLVED OXYGEN: May 1971 to October 1977, August 1981 to current year.

INSTRUMENTATION.--Water-quality monitor May 1971 to October 1977, August 1981 to current year.**REMARKS.**--Specific conductance record rated fair except for periods Mar. 18 to Apr. 1 and Aug. 14-18, which are poor. pH record rated good. Water temperature and dissolved oxygen records rated fair. Data collection discontinued during winter months since 1981 water year. Other interruptions in the record were due to malfunctions of the equipment.**EXTREMES FOR PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: Maximum, 858 microsiemens, Jan. 10, 1977; minimum, 72 microsiemens, Nov. 16, 1985.

pH: Maximum, 10.0, Dec. 21, 1971; minimum, 5.9, July 14, 1991.

WATER TEMPERATURE: Maximum, 33.5°C, July 19, 1977; minimum, 0.0°C, many days during winters.

DISSOLVED OXYGEN: Maximum, 19.5 mg/L, Sept. 2, 1990; minimum, 0.6 mg/L, Nov. 1, 3, 1974.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	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, 0.7 µM-MF (COLS. / 100 ML) (31625)
MAR 2002									
05...	1235	1028	1028	33	14.5	8.3	313	4.4	272
18...	1210	1028	1028	46	12.9	8.1	323	7.2	580
APR 23...	1330	1028	1028	31	11.0	8.0	323	13.4	217
MAY 01...	1315	1028	1028	35	10.7	8.0	317	16.4	740
14...	1230	1028	1028	227	8.8	7.5	202	16.3	48000
30...	1410	1028	1028	35	10.2	8.1	323	21.4	175
JUN 10...	0849	1028	1028	30	7.7	7.5	311	19.5	827
17...	1325	1028	1028	32	9.6	8.1	307	20.6	1160
25...	1400	1028	1028	23	10.8	8.7	381	25.6	760
JUL 08...	1410	1028	1028	17	11.5	8.6	396	23.7	120
15...	1145	1028	1028	17	9.9	8.0	400	22.1	233
23...	1335	1028	1028	14	10.8	8.5	431	27.4	197
AUG 06...	1130	1028	1028	14	8.6	7.8	463	24.5	380
14...	1220	1028	1028	10	10.2	8.4	538	26.6	553
20...	1250	1028	1028	9.1	10.0	8.2	531	26.9	293
SEP 12...	1355	1028	1028	17	10.9	8.4	463	21.1	157
23...	1320	1028	1028	16	9.9	8.1	502	22.5	500

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL-LECTING SAMPLE (CODE 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)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	ANC WATER UNFLTRD IT FIELD (MG/L AS CACO3) (00419)	
OCT 2001 02...	0845	80020	1028	19	11.3	7.9	393	14.5	32.3	10.4	5.97	25.1	73	
Date		CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	NITRO-GEN, DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	BORON, DIS-SOLVED (µG/L AS B) (01020)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)
OCT 2001 02...	41.4	10.6	34.5	<.04	4.10	.016	.16	20	<2	90	<.1	3.9	3.1	
Date		IRON, DIS-SOLVED (µG/L AS FE) (01046)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MERCURY DIS-SOLVED (µG/L AS HG) (71890)	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)						
OCT 2001 02...		47	<1	31.3	<.01	31.1	3.0	<24						

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATESREMARKS.--Samples were collected using a Hess sampler with a mesh size of 500 μ m. Each sample covered a total area of 3.2 m².

Date	10/02/01
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	104
Nematoda (NEMATODES)	84
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
<u>Prostoma</u> sp	10
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<u>Ferrissia</u> sp	1
Physidae	
<u>Physa</u> sp	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	31
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	17
<u>Pseudocloeon</u> sp	3
Ephemerellidae	
<u>Serratella</u> sp	3
Heptageniidae	
<u>Stenonema</u> sp	2
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	447
<u>Hydropsyche</u> sp	661
Hydroptilidae	
<u>Leucotrichia</u> sp	132
Leptoceridae	
<u>Oecetis</u> sp	1
Philopotamidae	
<u>Chimarra</u> sp	1
Lepidoptera	
Pyralididae (MOTHS)	
<u>Petrophila</u> sp	89
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	41
<u>Oulimnius</u> sp	5
<u>Stenelmis</u> sp	47
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	3

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/02/01
Benthic Macroinvertebrate	Count
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	121
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	9
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	1
Total organisms	1814
Total number of taxa	23

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	400	357	386	399	364	388	---	---	---
2	---	---	---	398	357	383	412	374	394	---	---	---
3	412	379	396	396	358	383	415	373	399	---	---	---
4	404	365	386	398	352	378	418	371	397	---	---	---
5	408	369	390	399	354	381	---	---	---	---	---	---
6	419	372	397	406	360	388	---	---	---	---	---	---
7	410	375	395	402	367	391	---	---	---	---	---	---
8	409	375	395	403	360	386	---	---	---	---	---	---
9	421	378	396	396	358	382	---	---	---	---	---	---
10	397	361	386	409	370	394	---	---	---	---	---	---
11	410	367	385	403	360	383	---	---	---	---	---	---
12	402	368	386	404	363	388	---	---	---	---	---	---
13	404	375	392	398	361	384	---	---	---	---	---	---
14	402	367	387	404	378	393	---	---	---	---	---	---
15	401	270	346	399	367	388	---	---	---	---	---	---
16	393	360	377	401	352	386	---	---	---	---	---	---
17	396	336	367	401	349	384	---	---	---	---	---	---
18	396	353	374	398	357	382	---	---	---	---	---	---
19	401	358	387	399	360	384	---	---	---	---	---	---
20	404	370	393	396	363	381	---	---	---	---	---	---
21	399	365	388	393	359	382	---	---	---	---	---	---
22	402	366	389	405	360	387	---	---	---	---	---	---
23	416	377	397	405	352	382	---	---	---	---	---	---
24	400	364	388	412	367	397	---	---	---	---	---	---
25	407	368	393	405	204	347	---	---	---	---	---	---
26	403	362	385	325	287	307	---	---	---	---	---	---
27	402	369	387	371	325	351	---	---	---	---	---	---
28	413	367	392	393	363	380	---	---	---	---	---	---
29	413	369	396	398	365	384	---	---	---	---	---	---
30	404	360	389	396	371	387	---	---	---	---	---	---
31	402	358	381	---	---	---	---	---	---	---	---	---
MONTH	421	270	387	412	204	380	418	364	394	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	378	342	362	---	---	---	324	289	310
2	---	---	---	374	339	361	340	304	322	332	149	272
3	---	---	---	339	195	233	345	320	337	257	129	219
4	---	---	---	302	257	279	342	306	321	311	257	283
5	---	---	---	345	299	319	353	317	334	338	311	322
6	---	---	---	350	315	336	355	313	338	343	323	336
7	---	---	---	351	328	339	352	323	341	348	324	338
8	---	---	---	356	332	348	358	331	348	358	335	347
9	---	---	---	368	335	353	360	321	345	362	289	333
10	---	---	---	365	289	336	353	306	320	338	290	315
11	---	---	---	373	333	355	357	320	332	352	326	340
12	---	---	---	378	340	358	362	323	346	349	284	326
13	---	---	---	362	320	338	355	326	343	306	175	253
14	---	---	---	334	294	316	348	308	333	235	156	198
15	---	---	---	353	331	342	348	326	336	286	235	261
16	---	---	---	361	327	348	357	325	341	307	278	292
17	---	---	---	370	337	354	363	329	350	333	305	318
18	---	---	---	350	300	322	373	345	362	333	174	241
19	---	---	---	327	281	299	377	312	357	272	230	248
20	---	---	---	334	182	266	374	343	361	305	271	285
21	---	---	---	260	210	237	373	345	362	318	295	307
22	---	---	---	319	260	289	364	323	339	335	305	319
23	---	---	---	331	318	324	340	309	327	342	313	327
24	---	---	---	326	278	299	362	331	347	354	324	341
25	---	---	---	349	295	316	366	329	350	356	333	346
26	---	---	---	354	220	334	357	324	339	356	341	348
27	364	324	348	305	221	262	358	294	342	352	335	344
28	363	322	346	319	287	307	358	221	261	350	324	335
29	---	---	---	328	296	312	293	238	266	335	310	324
30	---	---	---	344	285	320	305	293	299	380	314	340
31	---	---	---	346	307	325	---	---	---	365	339	354
MONTH	364	322	347	378	182	319	377	221	334	380	129	307

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN									
1	373	339	356	386	357	373	477	442	465	434	266	346
2	382	348	363	392	356	374	484	442	470	391	335	362
3	388	366	382	397	359	381	488	425	468	420	370	394
4	390	351	373	405	367	389	492	443	467	450	400	431
5	385	342	364	417	376	396	452	409	428	471	443	460
6	373	139	327	424	382	406	472	426	451	476	448	464
7	226	138	188	432	386	413	474	443	460	475	409	451
8	283	226	254	431	387	410	480	440	467	484	435	467
9	320	278	296	444	404	427	480	443	467	485	438	467
10	341	310	325	438	371	411	493	450	476	478	441	461
11	351	324	338	446	380	412	491	433	467	479	435	460
12	367	341	356	425	383	403	489	440	468	485	443	466
13	374	350	362	417	357	395	493	461	481	526	427	475
14	366	239	283	437	343	372	539	432	497	478	430	447
15	289	235	263	452	397	429	538	447	487	485	305	460
16	304	286	293	442	382	412	528	461	491	415	207	337
17	322	293	308	---	---	---	545	468	506	430	388	415
18	336	303	320	477	432	453	549	491	516	448	409	432
19	340	307	324	476	444	459	523	474	504	471	438	451
20	348	315	330	477	438	461	532	493	515	499	452	474
21	387	332	351	475	419	449	541	518	532	497	397	464
22	394	372	387	484	415	455	554	518	539	488	452	474
23	408	374	391	463	424	444	540	489	520	509	453	487
24	417	360	397	447	405	433	517	232	442	508	484	496
25	428	381	400	451	406	430	431	231	364	524	485	508
26	403	387	396	454	404	435	426	374	398	512	223	464
27	408	366	387	461	431	448	467	415	438	316	201	274
28	371	328	343	445	404	428	484	449	469	350	197	303
29	387	339	361	446	412	434	471	200	323	440	350	391
30	390	365	382	447	413	435	402	361	384	471	423	451
31	---	---	---	469	435	453	434	370	394	---	---	---
MONTH	428	138	340	484	343	421	554	200	463	526	197	434

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN									
1	---	---	---	8.6	7.5	7.9	7.6	7.3	7.5	---	---	---
2	---	---	---	8.4	7.4	7.7	8.0	7.4	7.8	---	---	---
3	8.7	7.7	8.3	8.1	7.2	7.4	8.1	7.8	7.9	---	---	---
4	8.8	7.6	8.3	8.5	7.3	7.8	7.9	7.5	7.8	---	---	---
5	8.8	7.6	8.3	8.5	7.4	8.0	---	---	---	---	---	---
6	8.5	7.5	8.1	8.5	7.5	7.9	---	---	---	---	---	---
7	8.7	7.7	8.4	8.4	7.5	7.9	---	---	---	---	---	---
8	8.7	7.8	8.4	8.6	7.5	8.0	---	---	---	---	---	---
9	8.6	7.8	8.3	8.6	7.5	8.0	---	---	---	---	---	---
10	8.7	7.8	8.3	8.6	7.6	8.0	---	---	---	---	---	---
11	8.5	7.6	8.2	8.6	7.6	8.0	---	---	---	---	---	---
12	8.5	7.5	8.1	8.6	7.6	8.1	---	---	---	---	---	---
13	8.4	7.3	7.9	8.6	7.6	7.9	---	---	---	---	---	---
14	8.3	7.3	7.8	8.4	7.6	7.9	---	---	---	---	---	---
15	8.0	7.1	7.6	8.4	7.4	7.8	---	---	---	---	---	---
16	8.2	7.4	7.7	8.3	7.3	7.8	---	---	---	---	---	---
17	8.2	7.3	7.8	8.3	7.3	7.8	---	---	---	---	---	---
18	8.3	7.5	7.8	8.4	7.5	7.9	---	---	---	---	---	---
19	8.3	7.4	7.8	8.3	7.5	7.8	---	---	---	---	---	---
20	8.3	7.4	7.8	8.2	7.4	7.8	---	---	---	---	---	---
21	8.3	7.3	7.6	8.2	7.5	7.9	---	---	---	---	---	---
22	8.4	7.2	7.8	8.3	7.6	8.0	---	---	---	---	---	---
23	8.3	7.2	7.7	8.3	7.7	7.9	---	---	---	---	---	---
24	8.3	7.2	7.6	8.0	7.5	7.7	---	---	---	---	---	---
25	8.2	7.1	7.5	7.5	7.2	7.3	---	---	---	---	---	---
26	8.2	7.2	7.8	7.4	7.2	7.3	---	---	---	---	---	---
27	8.4	7.4	8.0	7.9	7.3	7.5	---	---	---	---	---	---
28	8.5	7.5	8.0	7.8	7.4	7.5	---	---	---	---	---	---
29	8.4	7.6	7.8	7.6	7.4	7.5	---	---	---	---	---	---
30	8.5	7.5	7.8	7.5	7.3	7.4	---	---	---	---	---	---
31	8.6	7.5	8.0	---	---	---	---	---	---	---	---	---
MAX	8.8	7.8	8.4	8.6	7.7	8.1	8.1	7.8	7.9	---	---	---
MIN	8.0	7.1	7.5	7.4	7.2	7.3	7.6	7.3	7.5	---	---	---

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	9.2	7.6	8.4	9.0	7.4	7.9	8.2	7.4	7.7
2	---	---	---	9.2	7.6	8.4	9.0	7.5	8.1	8.4	7.5	7.8
3	---	---	---	8.0	7.7	7.8	8.9	7.5	7.8	7.7	7.5	7.6
4	---	---	---	8.3	7.7	7.8	9.0	7.5	8.1	7.7	7.5	7.6
5	---	---	---	8.6	7.7	7.9	9.0	7.5	8.2	7.8	7.5	7.6
6	---	---	---	8.8	7.6	8.0	9.1	7.6	8.3	7.9	7.5	7.6
7	---	---	---	8.9	7.6	8.2	9.1	7.6	8.3	7.9	7.5	7.6
8	---	---	---	9.1	7.6	8.2	9.2	7.5	8.4	8.0	7.5	7.7
9	---	---	---	9.1	7.6	8.2	9.1	7.5	8.2	7.8	7.5	7.6
10	---	---	---	9.1	7.6	8.2	9.2	7.4	8.2	8.2	7.6	7.8
11	---	---	---	9.0	7.6	8.3	9.1	7.5	8.3	8.3	7.6	7.8
12	---	---	---	9.0	7.6	8.2	8.8	7.5	8.0	8.2	7.5	7.7
13	---	---	---	8.1	7.6	7.8	9.0	7.5	8.1	8.0	7.5	7.7
14	---	---	---	9.2	7.6	8.2	8.9	7.4	7.9	7.8	7.4	7.6
15	---	---	---	9.0	7.5	8.1	8.8	7.4	7.9	7.9	7.6	7.7
16	---	---	---	9.0	7.5	8.1	8.8	7.4	7.9	8.0	7.6	7.7
17	---	---	---	8.6	7.6	7.9	8.7	7.4	7.9	8.2	7.6	7.7
18	---	---	---	8.3	7.6	7.7	8.6	7.3	7.8	7.9	7.5	7.6
19	---	---	---	8.9	7.7	8.0	8.5	7.3	7.6	7.8	7.6	7.6
20	---	---	---	8.1	7.6	7.7	7.9	7.3	7.6	8.0	7.6	7.7
21	---	---	---	7.9	7.6	7.7	7.8	7.4	7.5	8.1	7.6	7.8
22	---	---	---	8.3	7.5	7.8	7.8	7.5	7.6	8.2	7.6	7.8
23	---	---	---	8.3	7.6	7.8	8.3	7.5	7.8	8.4	7.6	7.8
24	---	---	---	8.6	7.6	7.8	8.3	7.6	7.8	8.5	7.6	7.9
25	---	---	---	8.7	7.6	7.9	7.8	7.5	7.6	8.6	7.6	8.1
26	---	---	---	8.2	7.6	7.8	8.3	7.6	7.8	8.6	7.6	7.9
27	9.2	7.5	8.5	8.3	7.6	7.8	8.3	7.5	7.8	8.1	7.5	7.8
28	9.1	7.7	8.5	8.6	7.6	7.8	7.7	7.5	7.6	8.5	7.5	7.8
29	---	---	---	8.8	7.5	7.9	7.8	7.5	7.6	8.6	7.5	7.9
30	---	---	---	8.9	7.5	7.9	7.8	7.4	7.6	8.8	7.5	7.9
31	---	---	---	8.7	7.5	7.8	---	---	---	8.8	7.5	8.0
MAX	9.2	7.7	8.5	9.2	7.7	8.4	9.2	7.6	8.4	8.8	7.6	8.1
MIN	9.1	7.5	8.5	7.9	7.5	7.7	7.7	7.3	7.5	7.7	7.4	7.6
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.4	7.4	7.8	8.6	7.4	7.9	8.5	7.4	8.0	8.2	7.6	7.6
2	8.6	7.5	7.9	8.6	7.4	8.0	8.5	7.4	8.0	8.4	7.5	7.9
3	8.5	7.5	7.9	8.6	7.3	8.0	8.5	7.4	7.9	8.7	7.5	8.0
4	8.5	7.5	7.9	8.6	7.3	8.0	8.6	7.4	7.9	8.6	7.5	8.3
5	8.1	7.5	7.8	8.6	7.3	8.0	8.3	7.4	7.9	8.5	7.5	8.3
6	8.2	7.4	7.6	8.7	7.4	8.0	8.7	7.4	8.0	8.6	7.6	8.4
7	7.4	7.2	7.3	8.7	7.4	8.1	8.7	7.5	8.2	8.6	7.6	8.4
8	7.7	7.3	7.5	8.8	7.4	8.2	8.6	7.5	8.2	8.6	7.6	8.3
9	8.0	7.5	7.6	8.7	7.4	8.1	8.7	7.5	8.2	8.5	7.5	8.3
10	8.3	7.5	7.8	8.7	7.2	8.0	8.7	7.5	8.3	8.6	7.6	8.3
11	8.5	7.5	7.9	8.7	7.4	8.1	8.7	7.6	8.3	8.6	7.5	8.4
12	8.4	7.5	7.8	8.7	7.4	8.0	8.7	7.6	8.4	8.6	7.7	8.4
13	8.0	7.5	7.7	8.6	7.4	8.0	8.8	7.7	8.5	8.7	7.6	8.4
14	7.6	7.4	7.5	8.2	7.4	7.7	8.8	7.7	8.5	8.6	7.6	8.4
15	7.7	7.5	7.5	8.7	7.3	8.0	8.7	7.7	8.5	8.4	7.5	8.0
16	7.9	7.5	7.6	8.7	7.3	8.1	8.6	7.6	8.3	8.3	7.3	7.7
17	8.1	7.4	7.6	---	---	---	8.7	7.6	8.2	8.4	7.4	7.8
18	8.4	7.5	7.8	8.7	7.3	8.0	8.7	7.4	8.3	8.5	7.4	8.0
19	8.4	7.5	7.7	8.6	7.3	8.0	8.8	7.6	8.2	8.6	7.5	8.2
20	8.5	7.5	7.9	8.8	7.3	8.0	8.8	7.6	8.4	8.7	7.5	8.4
21	8.7	7.5	8.0	8.7	7.3	8.1	8.8	7.7	8.3	8.7	7.5	8.4
22	8.7	7.5	8.1	8.7	7.3	8.1	8.9	7.6	8.5	8.6	7.5	8.4
23	8.8	7.5	8.2	8.7	7.3	8.2	8.6	7.9	8.3	8.6	7.5	8.3
24	8.8	7.4	8.1	8.4	7.2	7.9	8.1	7.4	7.6	8.6	7.6	8.4
25	8.8	7.4	8.1	8.8	7.4	8.1	8.1	7.5	7.7	8.7	7.6	8.4
26	8.6	7.4	8.1	8.5	7.4	7.9	8.2	7.5	7.8	8.7	7.5	8.0
27	8.6	7.4	7.9	8.2	7.4	7.8	8.4	7.5	7.9	7.7	7.5	7.6
28	8.3	7.2	7.6	8.5	7.4	7.8	8.1	7.5	7.8	8.1	7.6	7.7
29	8.5	7.4	7.8	8.5	7.3	7.8	8.0	7.6	7.8	8.3	7.5	7.8
30	8.4	7.4	7.8	8.4	7.3	7.9	8.2	7.5	7.7	8.4	7.4	7.9
31	---	---	---	8.5	7.3	7.9	8.5	7.6	8.0	---	---	---
MAX	8.8	7.5	8.2	8.8	7.4	8.2	8.9	7.9	8.5	8.7	7.7	8.4
MIN	7.4	7.2	7.3	8.2	7.2	7.7	8.0	7.4	7.6	7.7	7.3	7.6

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	13.0	10.0	11.5	15.0	13.5	14.0	---	---	---
2	---	---	---	15.5	12.0	14.0	13.5	10.5	12.0	---	---	---
3	18.5	15.0	16.5	16.0	14.0	15.0	10.5	8.5	9.5	---	---	---
4	19.0	16.0	17.5	14.0	12.0	13.0	10.5	8.0	9.0	---	---	---
5	19.0	16.0	17.5	13.0	10.0	11.0	---	---	---	---	---	---
6	18.0	16.0	17.5	10.0	8.5	9.5	---	---	---	---	---	---
7	16.0	13.0	14.5	11.5	9.0	10.0	---	---	---	---	---	---
8	13.0	11.0	12.0	11.5	9.5	10.5	---	---	---	---	---	---
9	12.5	9.5	11.5	11.5	10.0	10.5	---	---	---	---	---	---
10	14.0	10.0	12.0	10.5	9.0	10.0	---	---	---	---	---	---
11	16.0	12.5	14.0	10.0	8.5	9.5	---	---	---	---	---	---
12	17.0	14.0	15.5	8.5	6.5	7.5	---	---	---	---	---	---
13	18.5	15.0	16.5	8.5	6.0	7.5	---	---	---	---	---	---
14	18.5	16.0	17.5	9.0	6.5	7.5	---	---	---	---	---	---
15	18.5	15.5	17.0	11.0	8.0	9.5	---	---	---	---	---	---
16	15.5	13.5	14.5	11.5	9.0	10.5	---	---	---	---	---	---
17	15.0	12.5	13.5	11.5	9.5	10.5	---	---	---	---	---	---
18	12.5	10.5	11.5	10.0	8.0	9.5	---	---	---	---	---	---
19	13.0	10.0	11.5	10.5	8.5	9.5	---	---	---	---	---	---
20	14.0	11.0	12.5	11.0	8.5	10.0	---	---	---	---	---	---
21	15.0	12.0	13.5	8.5	7.0	7.5	---	---	---	---	---	---
22	16.5	13.5	15.0	8.0	6.0	7.0	---	---	---	---	---	---
23	16.5	14.5	15.5	8.0	6.0	7.0	---	---	---	---	---	---
24	18.0	15.5	17.0	11.0	7.5	9.0	---	---	---	---	---	---
25	18.0	15.5	17.0	13.5	11.0	12.5	---	---	---	---	---	---
26	15.5	12.0	13.5	13.0	11.5	12.5	---	---	---	---	---	---
27	12.0	10.0	11.0	12.0	10.0	11.0	---	---	---	---	---	---
28	11.0	9.5	10.5	14.0	12.0	12.5	---	---	---	---	---	---
29	11.0	8.0	9.5	14.0	13.0	13.5	---	---	---	---	---	---
30	12.0	9.5	11.0	15.0	14.0	14.5	---	---	---	---	---	---
31	11.5	9.5	10.5	---	---	---	---	---	---	---	---	---
MONTH	19.0	8.0	14.0	16.0	6.0	10.4	15.0	8.0	11.1	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	7.0	3.5	5.5	14.0	11.0	12.0	18.0	13.0	15.5
2	---	---	---	7.0	4.5	5.5	14.0	9.5	12.0	19.5	14.0	16.0
3	---	---	---	8.5	7.0	8.0	16.0	11.5	13.5	17.5	15.0	16.0
4	---	---	---	7.5	4.0	6.0	13.0	9.0	11.0	17.0	12.0	14.5
5	---	---	---	5.5	2.0	4.0	10.5	8.0	9.5	19.0	13.5	16.0
6	---	---	---	7.0	3.5	5.0	11.5	7.5	9.0	18.5	14.5	16.5
7	---	---	---	9.0	5.0	7.0	12.0	7.0	9.5	20.5	16.0	18.0
8	---	---	---	11.0	7.0	9.0	13.5	8.5	10.5	21.0	17.0	19.0
9	---	---	---	12.5	9.5	11.0	16.0	11.5	13.5	18.5	15.5	16.5
10	---	---	---	12.5	7.0	10.5	17.5	13.5	15.5	20.5	15.0	17.5
11	---	---	---	8.5	5.5	7.0	16.5	12.0	14.5	19.5	15.0	17.5
12	---	---	---	8.5	6.0	7.0	14.0	12.5	13.0	19.0	15.5	17.0
13	---	---	---	9.0	8.0	8.5	17.0	13.5	15.0	19.5	17.0	18.0
14	---	---	---	12.5	8.0	10.0	19.0	15.5	17.0	17.5	14.5	16.0
15	---	---	---	14.0	10.0	12.0	21.5	17.0	19.0	17.5	13.0	15.0
16	---	---	---	14.0	11.0	13.0	23.5	18.0	20.5	19.0	13.5	16.0
17	---	---	---	11.0	7.0	8.5	24.5	19.0	21.5	20.0	16.5	18.0
18	---	---	---	7.0	6.5	7.0	24.0	20.0	22.0	18.5	13.5	15.0
19	---	---	---	9.5	6.5	8.0	24.0	19.5	21.5	15.5	11.5	13.5
20	---	---	---	8.5	7.0	7.5	21.0	19.0	20.5	14.5	11.5	13.0
21	---	---	---	10.5	6.0	8.0	19.0	14.0	16.0	15.0	11.0	13.0
22	---	---	---	9.0	5.0	6.5	14.5	12.5	13.5	16.5	11.0	14.0
23	---	---	---	8.5	3.5	6.0	15.0	11.0	13.0	18.5	12.5	15.5
24	---	---	---	9.0	5.5	7.0	16.5	10.5	13.5	20.0	14.0	17.0
25	---	---	---	9.5	7.0	8.0	14.0	11.5	12.5	20.5	17.0	18.5
26	---	---	---	8.5	7.5	8.0	15.5	10.0	12.5	19.0	16.5	17.5
27	9.0	5.5	7.5	8.5	7.0	8.0	16.0	11.0	13.5	19.0	17.5	18.0
28	6.5	3.5	5.0	11.0	6.5	8.5	15.0	12.5	14.0	20.0	17.5	18.5
29	---	---	---	13.0	8.0	10.0	15.0	12.5	14.0	22.0	18.0	19.5
30	---	---	---	14.5	10.5	12.5	15.5	10.5	13.0	23.0	18.5	20.5
31	---	---	---	12.5	11.5	12.5	---	---	---	24.0	19.0	21.5
MONTH	9.0	3.5	6.2	14.5	2.0	8.2	24.5	7.0	14.5	24.0	11.0	16.7

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN									
1	25.0	20.0	22.5	26.0	21.5	24.0	28.0	24.0	26.5	21.5	18.5	19.5
2	23.5	19.5	21.5	27.5	22.5	25.0	28.0	24.5	26.5	21.0	18.5	19.5
3	22.5	18.5	20.5	28.0	24.0	26.0	28.0	25.5	26.5	23.5	19.5	21.5
4	21.0	18.5	19.5	29.0	24.5	27.0	28.0	24.5	26.5	25.0	21.5	23.0
5	23.5	18.5	21.0	27.5	24.5	26.5	27.0	24.5	26.0	23.5	20.5	22.0
6	23.5	19.5	22.0	25.0	21.5	23.5	26.5	23.5	25.0	22.5	19.5	21.5
7	19.5	18.5	19.0	23.5	20.0	22.0	24.5	21.0	22.5	22.5	19.0	21.0
8	21.5	17.0	19.5	25.0	20.0	22.5	23.5	20.0	22.0	22.5	19.0	21.0
9	22.5	17.0	19.5	26.0	21.5	24.0	24.5	20.0	22.5	23.0	19.0	21.5
10	24.0	19.0	21.5	26.5	23.0	24.5	25.0	21.0	23.0	24.0	20.5	22.5
11	25.0	20.0	22.5	24.0	20.0	22.5	25.5	21.5	24.0	23.5	21.0	22.5
12	24.5	21.5	23.0	24.0	19.0	22.0	26.0	23.0	24.5	21.5	18.5	20.0
13	23.0	20.0	21.5	23.0	19.5	21.5	28.0	24.0	26.0	21.0	17.5	19.5
14	20.0	17.5	18.5	22.5	20.5	21.5	28.0	25.0	26.5	22.0	19.0	20.5
15	18.5	17.0	17.5	25.5	20.0	22.5	28.0	25.0	26.5	22.5	21.5	22.0
16	20.5	16.5	18.5	26.0	21.5	24.0	27.5	25.5	26.5	24.0	21.5	23.0
17	21.5	17.5	19.5	---	---	---	28.5	25.0	26.5	23.0	20.5	22.0
18	22.5	17.0	19.5	26.5	23.0	25.0	28.5	25.0	26.5	22.0	19.5	21.0
19	22.0	18.5	20.0	26.5	24.0	25.5	28.5	25.5	27.0	22.0	19.0	20.5
20	23.0	18.5	20.5	27.0	23.5	25.5	27.5	25.0	26.5	23.0	20.0	21.5
21	24.0	18.5	21.0	26.0	23.5	25.0	27.0	23.0	25.0	24.0	21.0	22.5
22	24.5	19.5	22.0	27.5	23.0	25.5	26.5	23.0	24.5	24.5	22.5	23.5
23	25.0	20.0	22.5	28.5	24.5	26.5	26.0	24.5	25.0	23.0	20.5	22.0
24	25.5	21.0	23.5	27.0	24.0	25.0	25.0	23.5	24.0	21.0	18.0	19.5
25	26.5	22.0	24.5	25.5	22.0	24.0	26.0	23.0	24.5	20.0	18.0	19.0
26	27.0	23.0	25.0	24.0	21.5	22.5	24.5	22.0	23.0	19.5	17.5	19.0
27	27.5	23.5	25.5	22.5	21.0	22.0	24.0	21.5	23.0	19.5	16.5	17.5
28	25.5	23.0	24.0	26.0	22.0	24.0	23.5	21.0	22.5	20.5	18.5	19.5
29	25.5	21.5	23.5	27.5	24.0	26.0	21.0	18.5	19.5	19.5	16.5	18.0
30	25.5	21.5	23.5	28.0	25.0	26.5	20.0	19.0	19.5	19.5	16.5	18.0
31	---	---	---	27.5	24.0	26.0	22.0	18.5	20.0	---	---	---
MONTH	27.5	16.5	21.4	29.0	19.0	24.3	28.5	18.5	24.5	25.0	16.5	20.8

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	13.8	9.3	11.0	10.5	8.6	9.4	---	---	---
2	---	---	---	13.4	8.7	10.5	11.3	9.0	10.0	---	---	---
3	10.7	6.6	8.4	12.5	7.7	9.6	12.1	9.6	10.7	---	---	---
4	9.5	6.2	7.6	13.4	8.5	10.4	12.4	10.1	11.0	---	---	---
5	9.4	6.2	7.4	13.8	8.9	10.8	---	---	---	---	---	---
6	9.6	6.3	7.5	14.2	9.7	11.3	---	---	---	---	---	---
7	10.0	6.9	8.3	14.0	9.4	11.2	---	---	---	---	---	---
8	9.8	7.2	8.3	13.5	9.0	10.6	---	---	---	---	---	---
9	10.0	7.2	8.4	13.5	8.0	10.4	---	---	---	---	---	---
10	9.7	6.8	8.2	13.8	8.9	10.7	---	---	---	---	---	---
11	9.1	6.5	7.5	13.7	8.7	10.8	---	---	---	---	---	---
12	9.4	6.4	7.6	13.9	8.3	11.2	---	---	---	---	---	---
13	9.0	6.2	7.3	15.5	8.7	11.5	---	---	---	---	---	---
14	9.1	6.2	7.3	14.1	7.2	11.4	---	---	---	---	---	---
15	9.4	6.5	7.8	13.2	8.5	10.3	---	---	---	---	---	---
16	10.7	7.7	8.8	13.5	7.5	10.2	---	---	---	---	---	---
17	11.6	7.8	9.4	13.4	7.7	9.7	---	---	---	---	---	---
18	12.5	8.7	10.2	13.9	7.6	10.2	---	---	---	---	---	---
19	12.9	7.2	9.9	12.9	8.1	10.6	---	---	---	---	---	---
20	12.7	8.0	9.8	12.6	9.0	10.4	---	---	---	---	---	---
21	13.1	8.2	9.9	13.1	9.8	11.1	---	---	---	---	---	---
22	13.2	8.0	10.1	13.7	10.3	11.6	---	---	---	---	---	---
23	12.3	7.5	9.4	13.7	10.4	11.6	---	---	---	---	---	---
24	12.2	7.2	9.3	12.9	9.7	10.9	---	---	---	---	---	---
25	12.2	7.3	9.1	11.0	8.8	9.6	---	---	---	---	---	---
26	12.7	7.9	9.9	10.7	9.1	9.9	---	---	---	---	---	---
27	13.9	8.4	10.6	11.6	9.6	10.3	---	---	---	---	---	---
28	14.1	8.7	11.1	11.5	9.1	10.0	---	---	---	---	---	---
29	13.8	8.8	11.2	10.2	8.8	9.4	---	---	---	---	---	---
30	13.5	9.4	10.9	10.0	8.6	9.1	---	---	---	---	---	---
31	13.6	9.3	11.0	---	---	---	---	---	---	---	---	---
MONTH	14.1	6.2	9.0	15.5	7.2	10.5	12.4	8.6	10.3	---	---	---

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	15.7	10.9	12.9	13.7	9.6	11.3	10.7	8.2	9.5
2	---	---	---	15.3	10.8	12.6	14.4	9.5	11.7	9.5	7.3	8.4
3	---	---	---	11.2	10.5	10.9	14.0	9.2	10.7	9.0	8.1	8.7
4	---	---	---	13.0	10.8	11.9	14.7	9.4	11.9	10.2	8.6	9.4
5	---	---	---	14.5	11.6	13.0	15.1	10.3	12.5	10.0	8.2	9.1
6	---	---	---	14.7	11.2	12.8	15.3	10.7	12.6	10.0	8.1	8.9
7	---	---	---	14.7	10.5	12.3	15.6	10.7	12.7	9.5	7.7	8.5
8	---	---	---	14.8	9.9	11.9	15.4	10.1	12.4	9.8	7.7	8.5
9	---	---	---	14.0	8.8	11.0	14.4	8.7	11.1	9.3	7.7	8.5
10	---	---	---	14.0	8.6	11.0	14.6	8.2	10.7	10.1	8.3	9.3
11	---	---	---	15.5	10.4	12.5	14.7	8.8	11.2	10.5	8.3	9.3
12	---	---	---	15.4	10.5	12.3	13.3	9.0	10.7	10.3	7.8	9.1
13	---	---	---	11.9	9.7	10.7	13.3	8.6	10.4	9.5	7.9	8.7
14	---	---	---	14.7	9.2	11.6	11.9	7.6	9.4	9.4	8.2	9.0
15	---	---	---	14.0	8.6	10.8	11.1	7.3	8.8	10.1	8.9	9.5
16	---	---	---	12.6	8.1	10.1	10.7	6.8	8.4	10.1	8.3	9.3
17	---	---	---	13.4	9.1	11.1	10.5	6.4	8.0	9.5	7.9	8.6
18	---	---	---	13.1	10.6	11.7	10.4	6.1	7.7	9.8	7.9	9.2
19	---	---	---	14.2	10.6	12.3	10.1	4.4	7.3	10.4	9.4	10
20	---	---	---	11.9	10.5	11.3	8.8	4.5	6.9	10.7	9.5	10.1
21	---	---	---	12.4	10.5	11.6	9.5	6.6	8.3	10.9	9.6	10.2
22	---	---	---	13.4	10.6	12.2	10.4	8.3	9.3	10.9	9.2	10.1
23	---	---	---	13.9	11.3	12.6	11.1	9.0	9.9	10.7	8.6	9.7
24	---	---	---	14.0	11.1	12.4	11.3	8.7	9.8	10.7	7.9	9.3
25	---	---	---	14.0	10.9	12.1	10.3	8.7	9.3	10.7	7.8	9.1
26	---	---	---	13.2	10.8	11.7	11.5	9.2	10.2	10.9	8.1	9.1
27	14.5	9.0	11.6	13.1	11.3	12.0	11.4	8.7	9.9	10.1	8.1	8.8
28	15.2	10.6	12.6	13.7	10.6	12.2	9.9	8.7	9.4	10.3	7.7	8.9
29	---	---	---	13.8	9.8	11.7	10.3	9.1	9.6	10.4	7.9	8.9
30	---	---	---	13.5	9.3	11.0	11.1	8.8	10	10.3	7.6	8.7
31	---	---	---	13.2	9.2	10.8	---	---	---	10.2	7.2	8.4
MONTH	15.2	9.0	12.1	15.7	8.1	11.8	15.6	4.4	10.1	10.9	7.2	9.1
	JUNE			JULY			AUGUST			SEPTEMBER		
1	9.3	6.4	7.7	10.1	6.5	7.9	9.2	5.0	6.8	8.3	6.9	7.7
2	9.9	7.0	8.2	9.5	6.1	7.6	9.3	5.1	6.9	9.1	7.4	8.1
3	10.1	7.3	8.4	9.4	5.6	7.3	9.9	5.0	7.0	10.4	6.9	8.0
4	10.3	7.6	8.8	9.5	5.4	7.1	10.0	5.3	7.3	9.7	6.6	7.9
5	9.9	7.1	8.1	9.9	5.3	7.2	9.2	5.5	7.0	10.1	6.6	8.1
6	9.5	6.8	7.8	10.4	5.6	7.7	10.1	5.6	7.6	10.2	7.0	8.4
7	8.3	7.8	8.1	11.0	6.5	8.4	10.7	6.3	8.2	10.6	7.4	8.7
8	8.6	7.6	8.2	11.6	6.5	8.6	10.8	6.8	8.5	10.6	7.3	8.7
9	9.3	7.7	8.4	11.3	6.2	8.2	11.1	6.7	8.7	10.7	7.3	8.8
10	9.6	7.4	8.3	10.6	5.3	7.7	11.1	6.8	8.7	10.8	7.3	8.9
11	9.6	7.1	8.3	11.0	6.2	8.2	11.1	6.7	8.6	10.6	7.2	8.8
12	9.3	7.0	7.9	10.8	6.3	8.2	10.9	6.5	8.6	10.9	7.8	9.2
13	9.1	7.0	7.9	10.9	5.9	8.0	11.5	6.4	8.6	11.0	7.4	9.0
14	8.8	7.6	8.4	9.6	5.9	7.3	11.2	6.3	8.5	10.6	7.1	8.8
15	9.1	8.3	8.7	10.6	5.8	7.8	10.9	5.7	7.9	9.7	7.0	8.2
16	9.4	7.7	8.6	10.3	5.5	7.7	10.7	5.5	7.9	9.6	6.4	7.8
17	9.7	7.7	8.4	---	---	---	11.1	5.6	7.7	10.1	6.8	8.3
18	10.1	8.0	8.8	10.8	5.3	7.6	10.7	5.2	7.7	10.5	7.1	8.7
19	10.2	8.0	8.9	10.4	5.4	7.5	11.1	5.4	7.9	10.8	7.2	8.9
20	10.5	8.1	9.1	10.6	5.7	7.8	11.1	4.3	7.9	10.8	7.1	8.8
21	10.7	8.0	9.1	10.4	5.9	7.9	11.4	6.0	8.3	10.6	7.1	8.8
22	10.7	7.7	9.0	11.1	6.2	8.3	11.5	6.1	8.6	10.4	6.8	8.6
23	10.9	7.5	8.9	10.9	5.7	7.8	10.1	6.0	7.8	10.0	6.7	8.1
24	10.8	7.2	8.6	9.5	4.2	6.9	8.0	5.8	6.9	9.5	6.1	7.8
25	10.9	6.8	8.5	10.6	6.1	8.0	8.3	5.5	6.7	10.5	6.5	8.6
26	10.3	6.5	8.0	10.2	5.8	7.6	8.9	6.0	7.3	9.3	6.9	8.2
27	9.8	6.0	7.6	9.1	6.1	7.5	9.6	5.9	7.5	8.7	8.0	8.4
28	9.2	5.5	7.2	9.5	5.7	7.3	8.3	6.0	7.1	9.2	7.5	8.3
29	9.4	6.4	7.7	9.3	4.9	6.8	8.7	7.1	8.0	10.7	7.8	9.0
30	9.8	6.4	7.8	8.8	4.8	6.7	9.2	7.3	8.0	11.3	7.5	9.0
31	---	---	---	9.1	5.0	6.8	9.8	7.2	8.2	---	---	---
MONTH	10.9	5.5	8.3	11.6	4.2	7.6	11.5	4.3	7.8	11.3	6.1	8.5