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 sea level, from topographic map.

REMARKS.—No estimated daily discharges. Records fair. 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 Mar. 22	Time	e fi	charge t ³ /s	Gage Height (ft) *9.38			Date June 19	Time 0830	1	charge ft ³ /s	Gage Height (ft) 8.96	
			DISCHA	RGE, CUBIC F	EET PER SE		ER YEAR OC AN VALUES	TOBER 1999	TO SEPT	EMBER 20	00	
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	73 46 40 57 120	38 79 159 61 50	49 46 43 e42 41	47 48 48 70 124	e40 e38 e37 e35 e31	100 93 83 76 71	108 103 103 162 e110	84 90 85 80 77	61 60 54 53 51	58 50 62 61 50	38 40 41 123 48	40 104 40 58 33
6 7 8 9 10	59 47 44 41 219	48 44 41 40 40	165 109 65 53 73	67 54 52 50 75	e30 e33 e31 e30 e29	69 66 62 65	e96 102 106 188 158	77 71 69 65 96	102 83 61 54 49	48 44 43 41 49	40 42 36 37 36	29 28 29 33 31
11 12 13 14 15	133 65 53 49 45	41 40 39 40 40	96 58 64 214 211	111 66 57 50 e45	e29 e29 e29 e70 e110	74 129 84 69 63	111 108 97 95 95	110 73 85 123 73	47 51 119 68 62	43 41 38 46 54	34 34 35 39 45	32 31 90 42 143
16 17 18 19 20	42 50 66 46 57	39 39 37 38 39	100 77 66 61 71	e43 e40 e38 e36 e40	e90 e100 e80 212 191	66 159 91 72 67	108 152 186 122 108	61 62 61 112 148	64 54 73 586 97	50 45 43 42 47	36 35 33 34 31	46 33 31 56 64
21 22 23 24 25	64 51 55 51 43	41 39 41 43 44	99 73 60 57 51	e38 e36 e35 e33 e35	128 104 152 206 220	486 2340 e500 204 165	219 291 146 119 107	134 123 242 207 116	e70 262 90 66 54	40 38 35 36 38	30 30 30 32 30	39 31 31 32 51
26 27 28 29 30 31	42 41 40 40 39 40	74 286 93 61 53	51 50 49 47	e33 e32 e31 e31 e30 e30	197 132 323 132 	144 132 307 160 131	103 101 98 92 87	87 74 80 74 67	54 52 105 101 85	89 87 49 44 39	29 31 38 31 30 44	369 111 56 44 39
TOTAL MEAN MAX MIN CFSM IN. (†)	1858 59.9 219 39 1.09 1.26	1767 58.9 286 37 1.07 1.20	2339 75.5 214 41 1.37 1.58	1525 49.2 124 30 .89 1.03	2868 98.9 323 29 1.80 1.94 +0.1	6305 203 2340 60 3.70 4.26	3781 126 291 87 2.29 2.56 0	2970 95.8 242 61 1.74 2.01 -0.1	2788 92.9 586 47 1.69 1.89	1489 48.0 89 35 .87 1.01	1192 38.5 123 29 .70 .81	1796 59.9 369 28 1.09 1.21 +0.1
STATISTIC	CS OF MON	THLY MEA	N DATA	FOR WATER Y	EARS 1970	0 - 2000,	BY WATER Y	EAR (WY)				
MEAN MAX (WY) MIN (WY)	56.0 190 1997 21.7 1998	73.0 144 1997 22.8 1999	93.1 306 1997 21.5 1999	104 330 1979 20.1 1981	108 235 1971 41.9 1992	128 308 1994 43.0 1985	119 241 1983 39.9 1985	95.7 213 1989 41.5 1999	82.5 302 1972 28.4 1999	69.7 236 1984 18.4 1999	46.9 123 1971 16.8 1995	56.0 186 1979 21.4 1981

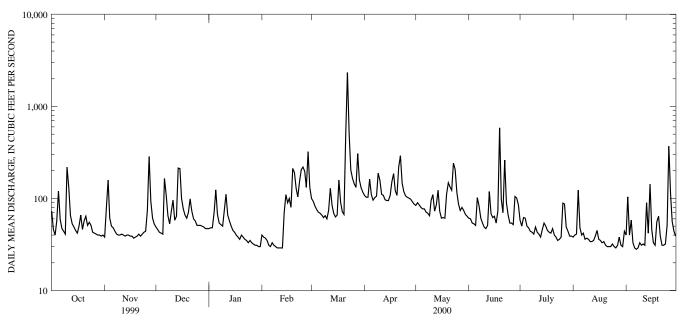
[†] Change in contents from Rock Run Reservoir, equivalent in cubic feet per second.

e Estimated.

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

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR	FOR 2000 WATER YEAR	WATER YEARS 1970 - 2000
ANNUAL TOTAL	23979	30678	
ANNUAL MEAN	65.7	83.8	86.0
HIGHEST ANNUAL MEAN			130 1979
LOWEST ANNUAL MEAN			37.6 1981
HIGHEST DAILY MEAN	2660 Sep 16	2340 Mar 22	4010 Jun 22 1972
LOWEST DAILY MEAN	12 Aug 3	28 Sep 7	9.8 Sep 13 1981
ANNUAL SEVEN-DAY MINIMUM	14 Jul 29	30 Feb 7	11 Sep 4 1995
INSTANTANEOUS PEAK FLOW		4690 Mar 22	a 9600 Jun 29 1973
INSTANTANEOUS PEAK STAGE		9.38 Mar 22	12.47 Jun 29 1973
ANNUAL RUNOFF (CFSM)	1.19	1.52	1.56
ANNUAL RUNOFF (INCHES)	16.22	20.75	21.23
10 PERCENT EXCEEDS	101	143	147
50 PERCENT EXCEEDS	43	56	57
90 PERCENT EXCEEDS	18	33	26

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



1-YEAR HYDROGRAPH OCTOBER 1, 1999 TO SEPTEMBER 30, 2000

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 records rated good except for period Oct. 7 to Nov. 18, which are fair. pH records rated good except for periods May 23 to June 22, which are fair and July 19-24, which are poor. Water temperature records rated good. Dissolved oxygen records rated good except for periods Oct. 7 to Nov. 18, Nov. 26 to Dec. 2, Apr. 19 to May 12, and Aug. 24 to Sept. 5, which are poor. 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 1999 TO SEPTEMBER 2000

DATE	AGEI ANZ LYZ: SAMI (CO NUMI	A- ING PLE ODE	SAM: (CO	L- FING PLE ODE BER)	CHAIN (CU		D SO (M	LVED G/L)	WH FI (ST A UN	TER SFORE CIRCLE	PE- FIC N- JCT- JCE JCM)	TEM AT WA' (DE	TER G C)	NE TO (M A CA	RD- SS TAL G/L S .CO3)	DI SO (M AS	CIUM S- LVED G/L CA) 915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1999 29	80	020	10	28	4	0	11	. 3	7	.7 3	867	9	. 7	1	20		30	10
DAT	E	POTE SII DIS SOLI (MG, AS I	UM, S- VED /L K)	SOD: AI SORI TIC RAT:	O- P- ON IO	SODI DIS SOLV (MG AS	ED /L NA)	SODIU PERCEN (00932	NT	ANC WATER UNFLTRD IT FIELD (MG/L AS CACO3) (00419)	RI DI SC (N AS	HLO- IDE, IS- DLVED MG/L S CL)	FLUC RIDE DIS SOLV (MG/ AS F	;, ;- ;ED ;L	(MG AS	VED /L 2)		TED L (4)
OCT 1 29		5.	0	. 7		18		25		63	30)	. 5		11		31	
DAT			N, NIA S- VED /L N)	NITH GEN NO2+N DIS SOLV (MG, AS N	N, NO3 S- /ED /L N)	GE NITR DI SOL (MG AS	S- VED /L N)	PHOS- PHORUS ORTHO DIS- SOLVEI (MG/L AS P) (00673	S O, D	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	IN SC (µ AS	LUM- NUM, DIS- DLVED LG/L S AL) L106)	ARSEN DIS SOLV (µG, AS A	S- ZED ZED ZS)		/L B)	DIS SOLV (µG, AS C	S- ZED /L ZD)
OCT 1 29		<.02	0	3.73	3	<.0	10	.068		193		E7	<2.	0	57		<1.0)
DAT	E	CHROMIUI DISSOLUTION (MG ASOLUTION (MG	M, - VED /L CR)	COPPI DIS- SOLV (µG AS (/ED /L CU)	IRO DI SOL (µO AS	S- VED S/L FE)	LEAD DIS- SOLVI (µG/ AS PI (01049	ED L B)	MANGA- NESE, DIS- SOLVED (μG/L AS MN) (01056)	SC () AS	RCURY DIS- DLVED µG/L S HG) L890)	MOLY DENU DIS SOLV (µG AS M	M, S- ZED /L MO)	NICK DIS SOL (µC AS 1	VED J/L NI)	ZINC DIS SOLV (µG AS Z	;- /ED :/L :N)
OCT 1 29		6.	4	3.0)	30		<1.0	0	16		<.2	37	,	2		<20)

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

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)	COLI- FORM, FECAL, 0.45 µM-MF (COLS./ 100 ML) (31616)
OCT 1999									
29 MAR 2000	1010	80020	1028	40	11.3	7.7	367	9.7	
13	1300	1028	1028	85	13.8	8.6	266	8.1	2600
28	0856	1028	1028	405	10.5	7.6	192	10.2	2000
APR									
10	1130	1028	1028	155	12.4	8.2	232	9.2	820
26 MAY	1130	1028	1028	105	11.4	7.8	260	11.4	230
04	1420	1028	1028	83	11.8	8.7	272	17.4	К97
16	1530	1028	1028	60	9.7	8.1	284	17.5	640
23	1400	1028	1028	178	9.7	7.7	225	14.8	K24000
JUN									
01	1115	1028	1028	61	11.3	8.3	301	17.0	570
13	1115	1028	1028	187	8.8	7.4	230	19.0	11000
27	1200	1028	1028	59	9.8	8.4	317	23.0	K2100
JUL	1000	1000	1000	4.0	0.4	0 0	200	01 1	F.0.0
12	1200	1028 1028	1028 1028	43 42	9.4 8.8	8.2 8.5	320 316	21.1 19.3	590 1300
21 26	1100 1210	1028	1028	200	8.4	7.8	247	19.3	K18000
AUG	1210	1026	1020	200	0.4	7.0	247	19.3	KIOOOO
02	1400	1028	1028	45	9.3	8.1	356	24.0	1100
10	1520	1028	1028	35	10.3	8.8	342	25.3	570
24	1430	1028	1028	33	11.0	8.8	347	20.8	1300
SEP									
05	1315	1028	1028	34	9.5	8.1	315	20.3	1100
20	1430	1028	1028	65	10.0	8.2	285	19.0	K9700

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

BIOLOGICAL DATA BENTHIC MACROINVERTEBRATES

REMARKS.--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	10/29/99
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (Flatworms)	
Tricladida	
Planariidae	2
Mollusca	
Gastropoda (Snails)	
Basommatophora Planorbidae	
Gyraulus	1
Annelida (Segmented Worms)	-
Oligochaeta	3
Arthropoda	
Acariformes	
Hydrachnidia (Water Mites)	12
Insecta	
Ephemeroptera (Mayflies)	
Baetidae	
Baetis	1
Caenidae	
Caenis	1
Ephemerellidae	0
<i>Serratella</i> Heptageniidae	8
Stenonema	7
Megaloptera	,
Corydalidae (Fishflies and Dobsonflies)
Corydalus	1
Trichoptera (Caddisflies)	
Hydropsychidae	
Cheumatopsyche	47
Hydropsyche	62
Hydroptilidae	
Leucotrichia	13
Lepidoptera	
Pyralididae (Moths)	
Petrophila	3
Coleoptera (Beetles)	
Elmidae (Riffle Beetles)	36
Optioservus Oulimnius	30 7
Stenelmis	57
Hydrophilidae	31
Berosus	2
Psephenidae (Water Pennies)	
Psephenus	9
Diptera (True Flies)	
Chironomidae (Midges)	71
Empididae (Dance Flies)	
Hemerodromia	2
Simuliidae (Black Flies)	
Simulium	4
Tipulidae (Crane Flies)	_
Antocha	2
	351
Total Count	351
Total number of taxa	22

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

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

			,					,				
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
		OCTOBER			NOVEMBER			DECEMBER			JANUARI	
1	316	271	296	387	370	379						
2	339 360	315 332	326 343	388 307	235 239	349 279						
4	357	204	313	331	307	316						
5	307	206	262	353	331	341						
6	323	294	307	371	350	359						
7	347	320	332	379	355	365						
8	368	329	345	380	364	373						
9 10	369 368	352 195	362 272	380 374	359 353	368 362						
	500	175	2,2	3,1	555	302						
11	272	206	242	378	356	364						
12 13	321 349	272 318	294 328	379 372	360 352	368 362						
14	355	340	348	363	344	352						
15	370	347	360	355	343	348						
16	370	352	362	351	336	343						
17	372	280	362	348	330	339						
18	338	244	316	349	329	337						
19 20	360 363	327 294	342 335	344 350	327 322	337 335						
21 22	343 349	303 338	320 343	347 331	322 308	333 321						
23	349	338	335	328	293	317						
24	361	325	341	319	296	311						
25	364	353	359	332	303	317						
26	377	353	363									
27	382	360	371									
28	376	363	369									
29 30	382 387	367 368	374 378									
31	393	372	382									
MONTH	393	195	335	388	235	343						
MONTH	393	193	333	300	233	343						
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX			MAX		MEAN	MAX		MEAN	MAX		MEAN
DAY	MAX	MIN FEBRUAR		MAX	MIN MARCH	MEAN	MAX	MIN APRIL	MEAN	MAX	MIN MAY	MEAN
1	MAX	FEBRUAR				MEAN	274		271	289	MAY 270	282
1 2		FEBRUAR	Y 		MARCH		274 275	APRIL 268 266	271 270	289 291	MAY 270 250	282 274
1 2 3		FEBRUAR	Y 		MARCH		274 275 271	268 266 263	271 270 267	289 291 280	MAY 270 250 253	282 274 272
1 2		FEBRUAR'	Y 	 	MARCH 		274 275	APRIL 268 266	271 270	289 291	MAY 270 250	282 274
1 2 3 4 5		FEBRUAR	 	 	MARCH 		274 275 271 271 263	268 266 263 201 236	271 270 267 232 248	289 291 280 278 282	270 250 253 266 269	282 274 272 272 276
1 2 3 4		FEBRUAR	 	 	MARCH 	 	274 275 271 271	268 266 263 201	271 270 267 232	289 291 280 278	MAY 270 250 253 266	282 274 272 272
1 2 3 4 5	==== ==== ====	FEBRUAR	Y	 301 298	MARCH 288 287	 293 292	274 275 271 271 263 269 274 276	268 266 263 201 236 252 268 257	271 270 267 232 248 259 270 269	289 291 280 278 282 279 284 285	MAY 270 250 253 266 269 269 277 276	282 274 272 272 276 275 280 280
1 2 3 4 5 6 7 8 9		FEBRUAR	Y	 301 298 300	MARCH 288 287 287	 293 292 292	274 275 271 271 263 269 274 276 257	268 266 263 201 236 252 268 257 223	271 270 267 232 248 259 270 269 232	289 291 280 278 282 279 284 285 287	MAY 270 250 253 266 269 269 277 276 276	282 274 272 272 276 275 280 280 282
1 2 3 4 5	==== ==== ====	FEBRUAR	Y	 301 298	MARCH 288 287	 293 292	274 275 271 271 263 269 274 276	268 266 263 201 236 252 268 257	271 270 267 232 248 259 270 269	289 291 280 278 282 279 284 285	MAY 270 250 253 266 269 269 277 276	282 274 272 272 276 275 280 280
1 2 3 4 5 6 7 8 9 10		FEBRUAR	Y	 301 298 300 300	MARCH 288 287 287 287	 293 292 292 294	274 275 271 271 263 269 274 276 257 252	268 266 263 201 236 252 268 257 223 217	271 270 267 232 248 259 270 269 232 233	289 291 280 278 282 279 284 285 287 292	MAY 270 250 253 266 269 269 277 276 276 192 223	282 274 272 272 276 275 280 280 282 273
1 2 3 4 5 6 7 8 9 10		FEBRUAR	Y	 301 298 300 300	MARCH 288 287 287 287 243	 293 292 292 294 293 254	274 275 271 271 263 269 274 276 257 252	268 266 263 201 236 252 268 257 223 217	271 270 267 232 248 259 270 269 232 233 251 255	289 291 280 278 282 279 284 285 287 292	MAY 270 250 253 266 269 277 276 276 276 276 276	282 274 272 272 276 275 280 280 280 282 273
1 2 3 4 5 6 7 8 9 10		FEBRUAR	Y	 301 298 300 300	MARCH 288 287 287 287	 293 292 292 294	274 275 271 271 263 269 274 276 257 252	268 266 263 201 236 252 268 257 223 217	271 270 267 232 248 259 270 269 232 233	289 291 280 278 282 279 284 285 287 292	MAY 270 250 253 266 269 269 277 276 276 192 223	282 274 272 272 276 275 280 280 282 273
1 2 3 4 5 6 7 8 9 10		FEBRUAR	Y	 301 298 300 300 304 277 276	MARCH 288 287 287 287 276 243 253	 293 292 292 294 293 254 263	274 275 271 271 263 269 274 276 257 252 262 266 270	268 266 263 201 236 252 268 257 223 217 247 250 237	271 270 267 232 248 259 270 269 232 233 251 255 264	289 291 280 278 282 279 284 285 287 292 272 283 292	MAY 270 250 253 266 269 277 276 276 192 223 267 164	282 274 272 272 276 280 280 282 273 243 275 273
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		FEBRUAR	Y	 301 298 300 300 304 277 276 286 289	MARCH 288 287 287 287 287 276 243 253 269 278	 293 292 292 294 293 254 263 276 283	274 275 271 263 269 274 276 257 252 262 266 270 272	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255	271 270 267 232 248 259 270 269 232 233 251 255 264 266	289 291 280 278 282 279 284 285 287 292 272 283 292 269 281	270 250 253 266 269 277 276 276 192 223 267 164 226 261	282 274 272 272 276 280 280 282 273 243 275 273 243 270
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		FEBRUAR	Y	 301 298 300 300 300 304 277 276 286 289	MARCH 288 287 287 287 287 2276 243 253 269 278 251 216	 293 292 292 294 293 254 263 276 283	274 275 271 271 263 269 274 276 257 252 262 266 270 272 272 272	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255	271 270 267 232 248 259 270 269 232 233 251 255 264 266 266	289 291 280 278 282 279 284 285 287 292 272 283 292 269 281	MAY 270 250 253 266 269 269 277 276 192 223 267 164 226 261	282 274 272 272 276 275 280 280 282 273 243 275 273 243 275 273 243 275 279 293
1 2 3 4 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18		FEBRUAR	Y	 301 298 300 300 300 304 277 276 286 289 297 257 255	MARCH 288 287 287 287 276 243 253 269 278 251 216 244	 293 292 292 294 293 254 263 276 283 287 239 248	274 275 271 271 263 269 274 276 257 252 262 266 270 272 272	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255	271 270 267 232 248 259 270 269 232 233 251 255 264 266 266	289 291 280 278 282 279 284 285 287 292 272 283 292 269 281	270 250 253 266 269 277 276 276 192 223 267 164 226 261	282 274 272 272 276 275 280 280 282 273 243 275 273 243 270 279 293 290
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		FEBRUAR	Y	 301 298 300 300 304 277 276 286 289 297 257 255	MARCH 288 287 287 287 287 276 243 253 269 278 251 216 244 230	 293 292 292 294 293 254 263 276 283 287 239 248 239	274 275 271 271 263 269 274 276 257 252 262 266 270 272 272 272 267 255 255 259	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255 234 219 241	271 270 267 232 248 259 270 269 232 233 251 255 264 266 266 258 246 233 248	289 291 280 278 282 279 284 285 287 292 272 283 292 269 281 291 303 299 296	MAY 270 250 253 266 269 277 276 276 192 223 267 164 226 261 268 281 282 196	282 274 272 272 276 275 280 282 273 243 275 273 243 270 279 293 290 258
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20		FEBRUAR	Y	 301 298 300 300 300 304 277 276 286 289 297 257 255 250 234	MARCH 288 287 287 287 276 243 253 269 278 251 216 244 230 222	 293 292 292 294 293 254 263 276 283 287 239 248 239 228	274 275 271 263 269 274 276 257 252 266 270 272 272 267 255 242 259 268	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255 234 219 241 258	271 270 267 232 248 259 270 269 232 233 251 255 264 266 266 233 248 248 261	289 291 280 278 282 279 284 285 287 292 272 283 292 269 281 291 303 299 296 261	270 250 253 266 269 277 276 276 192 223 267 164 226 261 268 281 282 196 183	282 274 272 272 276 275 280 280 282 273 243 275 273 243 270 279 293 290 258 235
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21		FEBRUAR	Y	 301 298 300 300 304 277 276 286 289 297 257 255 250 234	MARCH 288 287 287 287 287 2276 243 253 269 278 251 216 244 230 222	 293 292 292 294 293 254 263 276 283 287 239 248 239 228	274 275 271 271 263 269 274 276 257 252 266 270 272 272 272 267 255 242 259 268	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255 234 219 241 258	271 270 267 232 248 259 270 269 232 233 251 255 264 266 266 246 233 248 261	289 291 280 278 282 279 284 285 287 292 272 283 292 269 281 291 303 299 296 261	MAY 270 250 253 266 269 277 276 276 276 267 276 192 223 267 164 226 261 268 281 282 196 183	282 274 272 272 276 275 280 282 273 243 275 273 243 270 279 293 290 258 235
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22		FEBRUAR	Y	 301 298 300 300 300 304 277 276 286 289 297 257 255 250 234	MARCH 288 287 287 287 276 243 253 269 278 251 216 244 230 222	 293 292 292 294 293 254 263 276 283 287 239 248 239 228	274 275 271 271 263 269 274 257 252 262 266 270 272 272 272 267 255 242 259 268	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255 234 232 219 241 258	271 270 267 232 248 259 270 269 232 233 251 255 264 266 266 258 246 233 248 261	289 291 280 278 282 279 284 285 287 292 272 283 292 269 281 291 303 299 296 261	270 250 253 266 269 277 276 276 276 276 276 223 267 164 226 261 268 281 282 196 183	282 274 272 272 276 275 280 280 282 273 243 275 273 243 275 273 243 270 279 293 290 258 235
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24		FEBRUAR	Y	 301 298 300 300 304 277 276 286 289 297 257 255 250 234	MARCH 288 287 287 287 287 227 243 253 269 278 251 216 244 230 222 113 234	 293 292 294 293 254 263 276 283 287 239 248 239 228	274 275 271 271 263 269 274 276 257 252 266 270 272 272 272 267 255 242 259 268	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255 234 255 219 241 258	271 270 267 232 248 259 270 269 232 233 251 255 264 266 266 246 233 248 261 239 201 239 201	289 291 280 278 282 279 284 285 287 292 272 283 292 269 281 291 303 296 261 233 243 243 243 258	MAY 270 250 253 266 269 277 276 276 276 267 276 192 223 267 164 226 261 268 281 282 196 183 200 200 193 197	282 274 272 272 276 275 280 282 273 243 275 243 270 279 293 290 258 235 219 229 215 229
1 2 3 4 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23		FEBRUAR	Y	 301 298 300 300 304 277 276 286 289 297 257 255 250 234	MARCH 288 287 287 287 287 276 243 253 269 278 251 216 244 230 222	293 292 292 294 293 254 263 276 283 287 239 248 239 228	274 275 271 263 269 274 276 257 252 262 266 270 272 272 272 267 255 242 259 268	268 266 263 201 236 252 268 257 223 217 247 250 237 255 237 254 255 234 255 232 219 241 258	271 270 267 232 248 259 270 269 232 233 251 255 264 266 266 233 248 261 239 239	289 291 280 278 282 279 284 285 287 292 272 283 2992 269 281 291 303 299 296 261	270 250 253 266 269 277 276 276 276 276 276 276 276 276 276	282 274 272 272 276 275 280 280 282 273 243 275 273 243 275 273 243 270 279 293 290 258 235
1 2 3 4 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25		FEBRUAR	Y	 301 298 300 300 300 304 277 276 286 289 297 257 255 250 234 232 266 276	MARCH 288 287 287 287 287 2276 243 253 269 278 251 216 244 230 222 113 234 266	 293 292 292 294 293 254 263 276 283 287 239 248 239 228 193 249 272	274 275 271 263 269 274 276 257 252 266 270 272 272 267 255 242 259 268 271 224 258 268 271	268 266 263 201 236 252 268 257 223 217 247 250 237 255 237 247 255 237 254 255 232 219 241 258	271 270 267 232 248 259 270 269 232 233 251 255 264 266 233 248 261 239 261 239 261	289 291 280 278 282 279 284 285 287 292 272 283 299 269 281 291 303 299 296 261 233 243 243 243 258 268	270 250 253 266 269 277 276 276 276 276 276 276 276 276 276	282 274 272 272 276 275 280 280 282 273 243 275 273 243 275 273 243 270 279 293 290 258 235
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27		FEBRUAR	Y	 301 298 300 300 304 277 276 286 289 297 257 255 250 234 232 266 276 281	MARCH 288 287 287 287 287 2276 243 251 216 244 230 222 113 234 266 270 241	293 292 292 294 293 254 263 276 283 287 239 248 239 228 193 228	274 275 271 271 263 269 274 276 257 252 262 266 270 272 272 272 267 255 242 259 268 271 224 258 268 267 268	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255 234 232 219 241 258 167 177 224 256 256 257	271 270 267 232 248 259 270 269 232 233 251 255 264 266 233 246 233 248 261 239 201 239 201 239 261 261 261 264	289 291 280 278 282 279 284 285 287 292 272 283 292 269 281 291 303 299 296 261 233 243 236 258 268	MAY 270 250 253 266 269 269 277 276 192 223 267 164 226 261 268 281 282 196 183 200 200 193 197 244 264 280	282 274 272 272 276 275 280 280 282 273 243 275 273 243 270 279 293 290 258 235 219 229 215 229 253
1 2 3 4 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28		FEBRUAR	Y	 301 298 300 300 300 304 277 276 286 289 297 257 255 250 234 232 266 276	MARCH 288 287 287 287 287 2276 243 253 269 278 251 216 244 230 222 113 234 266 270 241 187	 293 292 292 294 293 254 263 276 283 287 239 248 239 248 239 248 239 248 239 248 239 248 239 248 239 248 259 276 283	274 275 271 263 269 274 276 257 252 266 270 272 272 267 255 242 259 268 271 224 258 268 267 272	268 268 266 263 201 236 252 268 257 223 217 247 250 237 255 234 255 234 255 234 255 219 241 258 167 177 224 256 256 257	271 270 267 232 248 259 270 269 232 233 251 255 264 266 233 248 261 239 261 239 261 261 264 264	289 291 280 278 282 279 284 285 287 292 272 283 299 269 261 233 299 296 261 233 243 236 258 268 287 297 291	MAY 270 250 253 266 269 269 277 276 192 223 267 164 226 261 268 281 282 196 183 200 193 197 244 264 280 276	282 274 272 272 276 275 280 280 282 273 243 275 273 243 275 273 243 270 279 293 290 258 235 219 229 215 229 253 274 287 283
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27		FEBRUAR	Y	 301 298 300 300 304 277 276 286 289 297 257 255 250 234 232 266 276 281	MARCH 288 287 287 287 287 2276 243 251 216 244 230 222 113 234 266 270 241	 293 292 294 293 254 263 276 283 287 239 248 239 228 193 249 272	274 275 271 271 263 269 274 276 257 252 262 266 270 272 272 272 267 255 242 259 268 271 224 258 268 267 268	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255 234 232 219 241 258 167 177 224 256 256 257	271 270 267 232 248 259 270 269 232 233 251 255 264 266 233 246 233 248 261 239 201 239 201 239 261 261 261 264	289 291 280 278 282 279 284 285 287 292 272 283 292 269 281 291 303 296 261 233 243 243 258 268 268	MAY 270 250 253 266 269 277 276 276 276 262 261 268 281 282 261 268 281 296 183 200 200 193 197 244 264 280 276 280	282 274 272 272 276 275 280 280 282 273 243 275 273 243 270 279 293 290 258 235 219 229 215 229 253
1 2 3 4 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29		FEBRUAR	Y	 301 298 300 300 304 277 276 286 289 297 257 255 250 234 232 266 276 281 283 241 258	MARCH 288 287 287 287 287 276 243 253 269 278 251 216 244 230 222 113 234 266 270 241 187 226	 293 292 292 294 293 254 263 276 283 287 239 248 239 248 239 248 239 248 239 248 239 248 239 248 239 248 259 276 283	274 275 271 271 263 269 274 276 257 252 266 270 272 272 272 267 255 242 259 268 271 224 258 268 267 268 277 268 268 267 268 268 268 268 268 268 268 268 268 268	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255 234 255 234 255 237 2254 255 237 256 256 257 223 217	271 270 267 232 248 259 270 269 232 233 251 255 264 266 266 258 248 261 239 201 239 261 261 261 264 264 275	289 291 280 278 282 279 284 285 287 292 272 283 299 269 261 233 299 296 261 233 243 236 258 268 287 297 291	MAY 270 250 253 266 269 269 277 276 192 223 267 164 226 261 268 281 282 196 183 200 193 197 244 264 280 276	282 274 272 272 276 275 280 282 273 243 275 243 270 279 293 290 258 235 219 229 215 229 253 274 287 288
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 20 20 20 20 20 20 20 20 20 20 20 20 20		FEBRUAR	Y	 301 298 300 300 304 277 276 286 289 297 257 255 250 234 232 266 276 281 283 241 258 269	MARCH 288 287 287 287 287 2276 243 253 269 278 251 216 244 230 222 113 234 266 270 241 187 226 254	293 292 292 294 293 254 263 276 283 287 239 248 239 228 193 249 272 275 276 212 276	274 275 271 271 263 269 274 276 257 252 262 266 270 272 272 272 267 255 242 267 255 242 268 271 224 258 268 267 272 272 272 272 272 273 274 275 275 275 275 275 275 275 275 275 275	268 266 263 201 236 252 268 257 223 217 247 250 237 254 255 234 255 234 255 237 254 255 256 256 257 226 256 257 277 273	271 270 267 232 248 259 270 269 232 233 251 255 264 266 233 248 261 239 201 239 201 239 261 261 264 264 264 264 264 264 264 264 264 264	289 291 280 278 282 279 284 285 287 292 272 283 292 269 281 291 303 299 296 261 233 243 236 258 268	270 250 253 266 269 277 276 276 276 276 276 276 226 261 282 281 282 196 183 200 200 193 197 244 264 280 276 280 287	282 274 2772 2772 2776 280 280 282 273 243 275 273 243 270 279 293 290 293 290 258 235 219 229 215 229 253 274 287 283 283 286 300

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

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST		S	EPTEMBE	R
1 2 3 4 5	301 307 311 311 311	276 292 297 297 280	290 299 303 304 300	292 307 310 301 322	277 288 164 254 298	285 296 289 286 309	352 360 351 339 314	320 330 332 146 284	334 343 342 238 298	333 321 294 303 331	299 179 235 227 298	317 243 268 265 314
6 7 8 9 10	312 290 293 307 320	184 245 275 284 295	260 274 284 295 306	332 342 344 340 337	313 317 318 320 277	323 330 332 329 312	330 332 348 353 350	308 315 319 325 322	319 323 331 339 337	344 358 363 365 345	312 330 331 324 311	332 346 346 341 326
11 12 13 14 15	321 325 259 278 298	301 209 179 252 274	310 313 243 264 286	328 340 349 352 329	304 311 324 314 292	315 326 338 332 308	357 361 353 354 336	337 324 327 295 297	349 346 339 335 313	334 337 318 305 301	295 293 167 275 148	318 312 255 287 222
16 17 18 19 20	298 	285 	291 	322 320 326 326 321	296 306 304 301 296	308 314 317 315 309	344 352 359 351 357	317 308 336 326 330	329 329 349 340 344	292 322 347 358 322	230 287 307 220 266	262 302 327 306 287
21 22 23 24 25	 271 299 308	 235 271 292	 255 285 300	344 342	313 326	328 336	358 368 370 355 363	336 339 335 326 336	350 354 352 343 352	340 346 359 356 357	316 325 335 321 164	326 338 347 343 330
26 27 28 29 30 31	319 271 287	155 204 254	 284 245 266	345 308 330 337 336 350	162 217 305 312 318 320	275 265 318 327 329 333	367 375 356 346 361 343	333 353 275 317 324 279	355 364 313 329 343 308	217 284 318 337 352	158 217 281 312 330	188 254 297 323 340
MONTH	325	155	284	352	162	314	375	146	334	365	148	302

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			NOVEMBE	R		DECEMBE	R		JANUAR	Y
1 2 3 4 5	7.9 8.1 8.4 7.9 7.7	7.6 7.7 7.7 7.7 7.7	7.7 7.8 7.9 7.7	9.0 7.9 7.6 7.7 8.0	7.5 7.5 7.4 7.4 7.4	7.9 7.6 7.5 7.5	7.7 	7.4 	7.5 		 	
6 7 8 9 10	7.9 8.3 8.5 8.6 7.8	7.7 7.7 7.7 7.7 7.5	7.7 7.8 7.9 7.9 7.7	8.3 8.3 8.5 8.5	7.5 7.5 7.5 7.5 7.5	7.6 7.6 7.6 7.6 7.7		 	 	 	 	
11 12 13 14 15	7.8 8.0 8.2 8.2	7.5 7.6 7.7 7.6 7.6	7.6 7.7 7.7 7.7 7.7	8.4 8.7 8.8 8.7 8.7	7.4 7.5 7.5 7.4 7.5	7.6 7.8 7.8 7.8 7.9		 		 	 	
16 17 18 19 20	8.4 8.4 8.2 8.5 7.8	7.6 7.5 7.4 7.6 7.6	7.8 7.7 7.6 7.7 7.6	8.6 8.6 8.8 8.9	7.5 7.5 7.5 7.5 7.5	7.9 7.8 7.9 7.7				 	 	
21 22 23 24 25	8.4 8.6 8.4 8.8	7.6 7.6 7.5 7.6 7.6	7.7 7.7 7.7 7.8 7.8	8.9 8.5 8.7 8.3 8.1	7.4 7.4 7.4 7.4 7.4	7.6 7.6 7.6 7.5 7.5		 		 	 	
26 27 28 29 30 31	8.8 8.9 8.9 8.9 8.9	7.6 7.6 7.6 7.6 7.6 7.6	7.8 7.9 7.9 7.9 7.8 7.9	8.2 7.5 7.5 7.5 7.7	7.4 7.3 7.2 7.2 7.3	7.6 7.4 7.3 7.3 7.4	 	 	 	 	 	
MAX MIN	8.9 7.7	7.7 7.4	7.9 7.6	9.0 7.5	7.5 7.2	7.9 7.3	7.7 7.7	7.4 7.4	7.5 7.5			

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

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	1	FEBRUAR	Y		MARCH			APRIL			MAY	
1 2 3 4 5	 	 	 	8.1 8.3 8.4 8.3 8.5	7.6 7.6 7.7 7.5 7.5	7.7 7.7 7.8 7.7 7.6	8.1 8.2 8.6 7.9 8.7	7.6 7.6 7.5 7.6	7.7 7.7 7.7 7.6 7.9	8.4 8.5 8.6 8.8 9.2	7.5 7.5 7.5 7.4 7.4	7.7 7.7 7.7 7.8 7.9
6 7 8 9	 		 	8.7 8.8 9.0 9.0	7.5 7.5 7.5 7.5 7.5	7.7 7.7 7.8 7.8 7.8	8.8 9.1 9.2 8.8 9.1	7.7 7.6 7.6 7.6 7.6	8.0 8.2 8.1 7.8 8.1	9.1 9.2 9.1 9.2 8.9	7.6 7.5 7.6 7.7 7.7	8.0 8.0 8.0 8.2 8.0
11 12 13 14	 		 	8.0 8.1 8.7 8.8 9.0	7.5 7.6 7.6 7.6 7.5	7.6 7.6 7.7 7.8 7.8	9.0 9.4 9.4 9.5 9.2	7.6 7.6 7.6 7.6 7.6	8.0 8.5 8.6 8.6 8.2	8.5 8.7 8.7 8.2 7.9	7.8 7.7 7.7 7.6 7.7	8.0 7.9 7.9 7.7 7.7
16 17 18 19 20	 		 	9.0 8.1 8.6 8.8 9.0	7.5 7.4 7.6 7.6 7.6	7.8 7.6 7.7 7.9 7.9	9.3 7.7 7.9 8.8 8.9	7.5 7.5 7.5 7.4 7.5	7.9 7.6 7.6 7.7	8.3 8.4 8.4 7.8 7.7	7.6 7.6 7.6 7.6 7.5	7.7 7.8 7.8 7.6 7.6
21 22 23 24 25	 8.2	 7.6	 7.7	8.0 7.6 7.7	7.4 7.5 7.6	7.6 7.6 7.6	7.8 7.7 8.0 8.1 8.1	7.5 7.5 7.6 7.6 7.6	7.6 7.6 7.7 7.7	7.5 7.6 7.8 7.8 7.9	7.4 7.4 7.2 7.5 7.4	7.5 7.5 7.4 7.6 7.6
26 27 28 29 30 31	8.1 8.3 8.2 7.8	7.6 7.6 7.6 7.6	7.6 7.7 7.7 7.6 	7.9 7.9 7.7 7.9 7.9 8.0	7.6 7.6 7.5 7.6 7.6 7.6	7.7 7.7 7.6 7.7 7.7	8.1 7.9 8.1 8.1	7.6 7.4 7.4 7.3 7.3	7.7 7.6 7.6 7.6 7.7	8.2 8.1 8.3 8.5 8.8 9.0	7.6 7.6 7.6 7.6 7.7	7.8 7.8 7.9 7.9 8.1 8.1
MAX MIN	8.3 7.8	7.6 7.6	7.7 7.6	9.2 7.6	7.7 7.4	7.9 7.6	9.5 7.7	7.7 7.3	8.6 7.6	9.2 7.5	7.8 7.2	8.2
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
DAY	MAX	MIN JUNE	MEDIAN	MAX	MIN JULY	MEDIAN	MAX	MIN AUGUST	MEDIAN	MAX	MIN SEPTEMB	
DAY 1 2 3 4 5	MAX 9.1 9.1 8.9 8.8 8.7		MEDIAN 8.1 8.1 8.0 8.0 8.0	MAX 8.8 8.9 8.9 8.4 9.0		7.8 8.0 7.9 7.7	MAX 8.4 8.6 8.4 7.9 8.2		7.9 7.9 7.9 7.8 7.9	8.6 7.9 7.9 8.0 8.3		
1 2 3 4	9.1 9.1 8.9 8.8	7.7 7.5 7.5 7.5	8.1 8.1 8.0 8.0	8.8 8.9 8.9 8.4	7.4 7.3 7.4 7.3	7.8 8.0 7.9 7.7	8.4 8.6 8.4 7.9	7.6 7.6 7.7 7.6	7.9 7.9 7.9 7.8	8.6 7.9 7.9 8.0	7.7 7.6 7.6 7.7	7.9 7.7 7.8 7.8
1 2 3 4 5 6 7 8	9.1 9.1 8.9 8.8 8.7 7.8 8.5 8.5	7.7 7.5 7.5 7.5 7.5 7.5 7.2 7.2 7.2	8.1 8.0 8.0 8.0 7.5 7.7 7.7	8.8 8.9 8.4 9.0 8.9 8.9	7.4 7.3 7.4 7.3 7.5 7.5 7.5 7.4 7.3 7.3	7.8 8.0 7.9 7.7 7.9 8.0 8.1 8.0 8.1	8.4 8.6 8.4 7.9 8.2 8.1 8.4 8.6 8.7	7.6 7.6 7.7 7.6 7.7 7.8 7.7 7.7	7.9 7.9 7.9 7.8 7.9 7.9 7.9 8.0	8.6 7.9 7.9 8.0 8.3 8.5 8.7 9.0	7.7 7.6 7.6 7.7 7.8 7.8 7.8 7.8 7.8	7.9 7.7 7.8 7.8 8.0 8.1 8.3 8.4 8.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14	9.1 9.1 8.9 8.8 8.7 7.8 8.5 8.3 8.2 8.1 7.9 7.5	7.7 7.5 7.5 7.5 7.5 7.5 7.2 7.2 7.2 7.3 7.3 7.3 7.3	8.1 8.0 8.0 8.0 7.5 7.7 7.7 7.6 7.5 7.5 7.5	8.8 8.9 8.4 9.0 8.9 8.9 9.0 8.9 9.1 8.9	7.4 7.3 7.4 7.3 7.5 7.5 7.5 7.5 7.4 7.3 7.3 7.3 7.5	7.8 8.0 7.9 7.7 7.9 8.0 8.1 8.0 8.1 8.0 8.3 8.1	8.4 8.6 8.4 7.9 8.2 8.1 8.4 8.6 8.7 8.9 8.9 8.8	AUGUST 7.6 7.6 7.7 7.6 7.7 7.8 7.7 7.7 7.6 7.7 7.6 7.6 7.7 7.7 7.7 7.7	7.9 7.9 7.8 7.9 7.9 7.9 8.0 8.1 8.1 8.1 8.7 9	8.6 7.9 7.9 8.0 8.3 8.5 8.7 9.0 9.1 9.2 9.2 9.2 8.7 8.7	7.7 7.6 7.7 7.8 7.8 7.8 7.8 7.8 7.7	7.9 7.7 7.8 7.8 8.0 8.1 8.3 8.4 8.6 8.6 8.5 8.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	9.1 9.1 8.9 8.8 8.7 7.8 8.5 8.3 8.2 8.1 7.9 7.5 7.3 7.7	7.7 7.5 7.5 7.5 7.5 7.2 7.2 7.2 7.3 7.4 7.3 7.3 7.3 7.3 7.3 7.3	8.1 8.0 8.0 8.0 7.5 7.7 7.7 7.6 7.5 7.5 7.4 7.3 7.4	8.8 8.9 8.4 9.0 8.9 8.9 9.0 8.9 9.1 8.2 8.2 8.4 8.6	7.4 7.3 7.4 7.3 7.5 7.5 7.5 7.4 7.3 7.3 7.5 7.5 7.5 7.4 7.3 7.5	7.8 8.0 7.9 7.7 7.9 8.0 8.1 8.0 8.3 8.1 7.7 7.6	8.4 8.6 8.4 7.9 8.2 8.1 8.6 8.7 8.9 8.8 8.7 8.0 8.6 8.7 8.9	AUGUST 7.6 7.7 7.6 7.7 7.8 7.7 7.7 7.6 7.6 7.6 7.6 7.6 7.6 7.6 7.6	7.9 7.9 7.8 7.9 7.9 7.9 7.9 8.0 8.1 8.1 8.1 8.1 7.9 7.8 7.9	8.6 7.9 7.9 8.0 8.3 8.5 8.7 9.0 9.1 9.2 9.2 9.2 9.2 7.7 7.9	7.7 7.6 7.7 7.8 7.8 7.8 7.8 7.7 7.7 7.7 7.7 7.6 7.6 7.6 7.7	7.9 7.7 7.8 7.8 8.0 8.1 8.3 8.6 8.6 8.5 8.5 7.7 7.8 7.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	9.1 9.1 8.9 8.8 8.7 7.8 8.5 8.3 8.2 8.1 7.9 7.5 7.3 7.7 7.9 	7.7 7.5 7.5 7.5 7.5 7.2 7.2 7.2 7.3 7.4 7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3	8.1 8.0 8.0 8.0 7.5 7.7 7.7 7.6 7.5 7.5 7.4 7.3 7.4 7.5 	8.8 8.9 8.4 9.0 8.9 8.9 9.0 8.9 9.3 9.1 8.2 8.2 8.4 8.6 9.1	7.4 7.3 7.4 7.3 7.5 7.5 7.5 7.3 7.3 7.3 7.5 7.5 7.4 7.4 7.4 8.4	7.8 8.0 7.9 7.7 7.9 8.0 8.1 8.0 8.3 8.1 7.7 7.6 7.6 7.7 8.6	8.4 8.6 8.7 8.9 8.1 8.6 8.7 8.9 8.9 8.8 8.7 8.0 8.6 8.7 8.9	AUGUST 7.6 7.7 7.8 7.7 7.7 7.6 7.7 7.6 7.6 7.6 7.6 7.6 7.6	7.9 7.9 7.8 7.9 7.9 7.9 7.9 8.0 8.1 8.1 8.1 8.2 7.9 7.8 7.9 7.8 8.1 8.3 8.5 8.6 8.3	8.6 7.9 7.9 8.0 8.3 8.5 8.7 9.0 9.1 9.2 9.2 9.2 9.2 7.7 7.9 8.1 8.5 8.7 8.2 7.7	7.7 7.6 7.7 7.8 7.8 7.8 7.8 7.7 7.7 7.7 7.7 7.6 7.6 7.6 7.6 7.7	7.9 7.7 7.8 7.8 8.0 8.1 8.3 8.6 8.6 8.5 8.5 7.7 7.8 7.6 7.7 7.8 8.0 7.7

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1 2	17.0 17.5	14.5 14.5	16.0 16.0	15.0 16.5	13.0 13.5	14.0 14.5	5.0	3.5	4.0			
3	18.5	15.5	17.0	14.5	10.5	12.5						
4 5	17.5 16.5	16.0 13.5	16.5 14.5	10.5 10.5	8.5 7.5	9.5 9.0						
6	15.0	12.0	13.5	12.0	9.5	10.5						
7 8	14.0 13.5	12.0 10.5	13.0 12.0	11.0 10.0	9.0 8.0	10.0 9.0						
9 10	15.5 16.0	12.5 15.0	14.0 15.5	10.5 12.5	7.5 10.0	9.0 11.0						
11 12	18.0 16.0	15.5 13.5	16.5 14.5	12.5 10.0	10.0 8.5	12.0 9.5						
13 14	16.0 15.5	12.5 13.0	$14.5 \\ 14.5$	12.0 11.5	8.5 9.5	10.0 10.5						
15	13.5	11.0	12.5	10.0	8.5	9.5						
16	14.5	11.0	13.0	8.5	6.5	7.5						
17 18	15.5 16.0	13.5 13.0	$14.5 \\ 14.5$	7.0 7.0	5.0 5.0	6.0 6.0						
19 20	13.0 13.0	11.5 12.5	12.5 12.5	8.0 10.0	6.0 7.0	7.0 8.5						
21	13.0		12.0	12.0	10.0	11.0						
22	13.0	11.0 10.0	11.5	12.5	11.0	11.5						
23 24	12.5 12.0	11.0 10.0	11.5 11.0	14.0 14.5	12.5 13.5	13.0 14.0						
25	12.0	9.5	11.0	14.0	12.5	13.5						
26	12.5	9.5	11.0	14.5	12.0	13.0						
27 28	12.5 12.0	10.5 10.0	11.5 11.0	14.0 11.0	11.0 9.0	12.0 10.0						
29 30	12.5 13.5	9.5 10.5	11.0 12.0	9.0 7.0	7.0 5.0	8.0 6.0						
31	14.5	12.0	13.0									
MONTH	18.5	9.5	13.4	16.5	5.0	10.2	5.0	3.5	4.0			
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN FEBRUARY		MAX	MIN MARCH	MEAN	MAX	MIN APRIL	MEAN	MAX	MIN MAY	MEAN
1		FEBRUARY		7.5	MARCH 5.5	6.5	13.0	APRIL 8.0	11.0	15.0	MAY 11.0	13.5
1 2 3		FEBRUARY	 	7.5 8.0 8.0	MARCH 5.5 6.5 5.5	6.5 7.0 6.5	13.0 13.0 15.0	8.0 10.0 12.0	11.0 11.5 13.5	15.0 17.5 17.5	MAY 11.0 13.5 12.5	13.5 15.5 15.0
1 2		FEBRUARY	 	7.5 8.0	MARCH 5.5 6.5	6.5 7.0	13.0 13.0	APRIL 8.0 10.0	11.0 11.5	15.0 17.5	MAY 11.0 13.5	13.5 15.5
1 2 3 4		FEBRUARY	 	7.5 8.0 8.0 8.5	5.5 6.5 5.5 5.0	6.5 7.0 6.5 6.5	13.0 13.0 15.0 15.0	8.0 10.0 12.0 12.0	11.0 11.5 13.5 13.5	15.0 17.5 17.5 18.5	MAY 11.0 13.5 12.5 13.5	13.5 15.5 15.0 16.0
1 2 3 4 5		FEBRUARY	 	7.5 8.0 8.0 8.5 9.5	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0	6.5 7.0 6.5 6.5 7.5 8.0 8.5	13.0 13.0 15.0 15.0 12.0	8.0 10.0 12.0 12.0 9.5 8.5 10.5	11.0 11.5 13.5 13.5 10.5	15.0 17.5 17.5 18.5 20.5	MAY 11.0 13.5 12.5 13.5 15.5	13.5 15.5 15.0 16.0 18.0
1 2 3 4 5 6 7 8 9		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5	6.5 7.0 6.5 6.5 7.5 8.0 8.5 11.0 12.0	13.0 13.0 15.0 15.0 12.0 14.0 14.0 16.5	8.0 10.0 12.0 12.0 9.5 8.5 10.5 11.5 8.5	11.0 11.5 13.5 13.5 10.5 11.0 12.5 14.0 10.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 23.0	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.0 21.5
1 2 3 4 5 6 7 8 9		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0	5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5	6.5 7.0 6.5 6.5 7.5 8.0 8.5 11.0 12.0	13.0 13.0 15.0 15.0 12.0 14.0 16.5 13.5	8.0 10.0 12.0 12.0 9.5 8.5 10.5 11.5 8.5 8.0	11.0 11.5 13.5 13.5 10.5 11.0 12.5 14.0 10.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 23.0 22.0	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0 17.5	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.0 21.5 20.0
1 2 3 4 5 6 7 8 9		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5	6.5 7.0 6.5 6.5 7.5 8.0 8.5 11.0 12.0	13.0 13.0 15.0 15.0 12.0 14.0 14.0 16.5	8.0 10.0 12.0 12.0 9.5 8.5 10.5 11.5 8.5	11.0 11.5 13.5 13.5 10.5 11.0 12.5 14.0 10.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 23.0	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.0 21.5
1 2 3 4 5 6 7 8 9 10		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0 13.0	5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0	6.5 7.0 6.5 7.5 8.0 8.5 11.0 12.0	13.0 13.0 15.0 15.0 12.0 14.0 16.5 13.5 12.5	8.0 10.0 12.0 9.5 8.5 10.5 11.5 8.5 8.0 9.5	11.0 11.5 13.5 10.5 11.0 12.5 14.0 10.5 10.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 22.0 22.0	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0 17.5 16.0 17.5	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.0 21.5 20.0 18.0
1 2 3 4 5 6 7 8 9 10		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0	5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0	6.5 7.0 6.5 6.5 7.5 8.0 8.5 11.0 12.0 12.0	13.0 13.0 15.0 15.0 12.0 14.0 14.5 13.5 12.5	8.0 10.0 12.0 12.0 9.5 8.5 10.5 11.5 8.5 8.0	11.0 11.5 13.5 13.5 10.5 11.0 12.5 14.0 10.5 10.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 23.0 22.0	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0 17.5	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.0 21.5 20.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		FEBRUARY		7.5 8.0 8.5 9.5 10.5 13.0 13.0 12.0 9.0 9.0 10.5 11.5	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0	6.5 7.0 6.5 6.5 7.5 8.0 8.5 11.0 12.0 12.0 10.5 8.5 7.5 8.5 7.5	13.0 13.0 15.0 15.0 12.0 14.0 14.0 16.5 13.5 12.5 11.0 13.5 12.0 13.0 13.0	8.0 10.0 12.0 12.0 9.5 8.5 10.5 11.5 8.5 8.0 9.5 10.0 8.5 11.0	11.0 11.5 13.5 10.5 11.0 12.5 14.0 10.5 10.5 10.5 10.5 10.5 11.5 10.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 22.0 22.0 21.0 21.5 20.5 18.5	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0 17.5 16.0 17.5 17.0 15.0	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.5 20.0 18.0 19.5 18.0 19.5 18.0 19.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0 12.0 9.0 9.0 10.5 11.5	5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0	6.5 7.0 6.5 6.5 7.5 8.0 8.5 11.0 12.0 10.5 8.5 7.5 8.5 7.5	13.0 13.0 15.0 15.0 12.0 14.0 14.0 16.5 13.5 12.5 11.0 13.5 12.0 13.0 13.0	8.0 10.0 12.0 9.5 8.5 10.5 11.5 8.0 9.5 10.0 8.0 8.5 11.0	11.0 11.5 13.5 13.5 10.5 11.0 12.5 14.0 10.5 10.5 10.5 10.5 11.5 10.5 12.0	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 23.0 22.0 21.0 21.5 20.5 18.5	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 17.5 16.0 17.0 17.5 17.0 15.0	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.5 20.0 18.0 19.0 19.5 18.5 17.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18		FEBRUARY		7.5 8.0 8.5 9.5 10.5 13.0 13.0 12.0 9.0 9.0 10.5 11.5	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0 9.0 6.5 4.5	6.5 7.0 6.5 6.5 7.5 8.0 8.1 11.0 12.0 12.0 10.5 8.5 7.5 8.5 9.5	13.0 13.0 15.0 15.0 12.0 14.0 14.0 14.5 12.5 11.0 13.5 12.5 11.0 13.0 13.0 13.0	8.0 10.0 12.0 9.5 8.5 10.5 11.5 8.5 8.0 9.5 10.0 8.5 11.0	11.0 11.5 13.5 10.5 11.0 12.5 14.0 10.5 10.5 10.5 10.5 10.5 11.5 10.5 11.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 22.0 22.0 21.0 21.5 21.5 21.5 21.5 20.0 21.0 21.5	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0 17.5 16.0 17.5 17.0 15.0 13.5 15.0 16.0 16.0	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.5 20.0 18.0 19.5 18.5 17.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0 12.0 9.0 9.0 10.5 11.5 11.5	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0	6.5 7.0 6.5 7.5 8.0 8.5 11.0 12.0 10.5 8.5 7.5 8.5 7.5 8.5 7.5 8.5 7.5	13.0 13.0 15.0 15.0 12.0 14.0 14.5 13.5 12.5 11.0 13.5 12.0 13.0 13.0 14.0 16.5	8.0 10.0 12.0 9.5 8.5 10.5 11.5 8.5 8.0 9.5 10.0 8.0 8.5 11.0	11.0 11.5 13.5 10.5 11.0 12.5 14.0 10.5 10.5 10.5 10.5 11.5 10.5 11.5 10.5 11.5 12.0	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.0 22.0 21.0 21.0 21.5 20.5 18.5	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0 17.5 16.0 17.5 17.0 15.0 13.5 16.0 13.5	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.0 20.0 19.0 19.5 18.0 19.0 19.5 18.0 17.0 18.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18		FEBRUARY		7.5 8.0 8.5 9.5 10.5 13.0 13.0 12.0 9.0 9.0 10.5 11.5	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0 9.0 6.5 4.5	6.5 7.0 6.5 6.5 7.5 8.0 8.1 11.0 12.0 12.0 10.5 8.5 7.5 8.5 9.5	13.0 13.0 15.0 15.0 12.0 14.0 14.0 14.5 12.5 11.0 13.5 12.5 11.0 13.0 13.0 13.0	8.0 10.0 12.0 9.5 8.5 10.5 11.5 8.5 8.0 9.5 10.0 8.5 11.0	11.0 11.5 13.5 10.5 11.0 12.5 14.0 10.5 10.5 10.5 10.5 10.5 11.5 10.5 11.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 22.0 22.0 21.0 21.5 21.5 21.5 21.5 20.0 21.0 21.5	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0 17.5 16.0 17.5 17.0 15.0 13.5 15.0 16.0 16.0	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.5 20.0 18.0 19.5 18.5 17.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0 12.0 9.0 9.0 10.5 11.5 12.0 8.5 9.0	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0 9.0 6.5 7.0	6.5 7.0 6.5 6.5 7.5 8.0 8.5 11.0 12.0 10.5 8.5 7.5 8.5 7.5 8.5 7.5 8.5 7.5	13.0 13.0 15.0 15.0 12.0 14.0 14.0 16.5 13.5 12.5 11.0 13.0 13.0 14.0 14.0 14.0 14.0 14.0 15.0 13.5 12.5	8.0 10.0 12.0 9.5 8.5 10.5 11.5 8.0 9.5 10.0 8.0 8.5 11.0 12.5 11.0 9.5 12.0	11.0 11.5 13.5 13.5 10.5 11.0 12.5 14.0 10.5 10.5 10.5 11.5 10.5 12.0 14.5 13.5 10.0 11.5 12.0	15.0 17.5 17.5 18.5 20.5 21.5 22.5 23.0 22.0 21.0 21.5 20.5 18.5 17.5 19.0 20.0 19.0 14.5 14.5 15.5	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0 17.5 16.0 17.5 17.0 15.0 13.5 15.0 16.0 13.5	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.5 20.0 18.0 19.0 19.5 18.5 17.0 18.0 17.5 14.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0 12.0 9.0 9.0 10.5 11.5	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0 9.0 6.5 4.5 7.0	6.5 7.0 6.5 6.5 7.5 8.0 8.5 11.0 12.0 10.5 8.5 7.5 8.5 7.5 8.5 7.5	13.0 13.0 15.0 15.0 12.0 14.0 14.0 14.5 13.5 12.5 11.0 13.5 12.0 13.0 14.0 14.0 14.0	8.0 10.0 12.0 9.5 8.5 10.5 11.5 8.0 9.5 10.0 8.5 11.0 12.5 11.0	11.0 11.5 13.5 13.5 10.5 11.0 12.5 14.0 10.5 10.5 10.5 10.5 11.5 10.5 12.0 14.5 13.5 10.0 12.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 23.0 22.0 21.0 21.5 20.5 18.5 17.5 19.0 20.0 21.0	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 17.5 16.0 17.0 17.5 17.0 15.0 13.5 15.0 16.0 16.0 13.5	13.5 15.5 16.0 18.0 19.5 20.5 21.5 20.0 18.0 19.0 19.5 17.0 16.0 17.0 18.0 17.0 14.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0 13.0 9.0 9.0 10.5 11.5 12.0 8.5 9.0 10.0	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0 9.0 6.5 7.0 6.0 8.5 9.5 10.5	6.5 7.0 6.5 6.5 7.5 8.0 8.10 12.0 12.0 10.5 8.5 9.5 10.5 9.5 7.0 8.5 9.5	13.0 13.0 15.0 15.0 12.0 14.0 14.0 16.5 13.5 12.5 11.0 13.0 13.0 13.0 14.0 16.0 14.0 14.0 14.0	### APRIL 8.0 10.0 12.0 12.0 12.5 10.5 11.0 12.5 11.0 12.5 11.0 12.5 11.0 12.5 12.0 13.5 14.0 15.5 15.0 16.5 17.5 17.5 18.5	11.0 11.5 13.5 10.5 11.0 12.5 10.5 10.5 10.5 10.5 10.5 11.5 11.5 12.0 14.5 13.5 12.0 12.5 11.5 11.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 22.0 22.0 21.0 21.5 20.5 18.5 17.5 19.0 20.0 19.0 16.0	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0 17.5 16.0 17.5 17.0 15.0 13.5 15.0 14.0 14.5 15.5	13.5 15.5 15.0 16.0 18.0 19.5 20.5 21.5 20.0 19.0 19.5 18.5 17.0 16.0 17.0 14.0 14.5 14.0 14.5 16.5 17.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 25 26 27		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0 12.0 9.0 9.0 10.5 11.5 12.0 8.5 9.0 10.0	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0 9.0 6.5 7.0 6.0 8.5 10.5 11.0	6.5 7.0 6.5 6.5 7.5 8.0 8.5 11.0 12.0 12.0 10.5 8.5 7.5 8.5 9.5 10.5 9.5 6.5 7.0 8.5	13.0 13.0 15.0 15.0 12.0 14.0 14.0 14.5 12.5 11.0 13.5 12.5 11.0 13.0 13.0 14.0 14.0 14.0 14.0 14.0	8.0 10.0 12.0 9.5 8.5 10.5 11.5 8.0 9.5 10.0 8.0 8.5 11.0 12.5 11.0 9.5 11.0 9.5 11.0	11.0 11.5 13.5 10.5 11.0 12.5 14.0 10.5 10.5 10.5 10.5 11.5 11.5 12.0 14.5 13.5 14.0 12.5 11.5 12.5 11.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 23.0 22.0 21.0 21.5 20.5 18.5 17.5 19.0 20.0 19.0 16.0	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 17.5 16.0 17.5 17.0 15.0 13.5 15.0 16.0 16.0 14.0 14.5 15.5	13.5 15.5 16.0 18.0 19.5 20.5 21.0 21.5 20.0 19.5 18.0 19.5 17.0 16.0 17.0 14.5 14.5 14.0 14.5 16.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0 13.0 9.0 9.0 10.5 11.5 12.0 9.0 10.0	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0 9.0 6.5 7.0 6.0 8.5 9.5 10.5 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0	6.5 7.0 8.0 8.5 7.5 8.0 11.0 12.0 10.5 8.5 9.5 10.5 9.5 7.0 8.5 9.5	13.0 13.0 15.0 15.0 12.0 14.0 14.0 16.5 13.5 12.5 11.0 13.0 13.0 13.0 14.0 16.0 14.0 14.0 14.0 15.0 14.0 16.0	### APRIL 8.0 10.0 12.0 12.0 15.0 15.5 10.5 10.0 8.5 11.0 12.5 11.0 12.5 11.0 12.5 11.0 12.5 11.0 12.5 11.0 12.5 11.0 12.5 13.0 14.5 15.5 16.5 1	11.0 11.5 13.5 10.5 11.0 12.5 10.5 10.5 10.5 10.5 11.5 11.5 12.0 14.5 13.5 12.0 12.5 11.5 11.5 11.5 11.5 11.5 11.5	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 22.0 22.0 21.0 21.5 20.5 18.5 17.5 19.0 20.0 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 19.0 17.5 16.0 17.5 17.0 15.0 13.5 15.0 14.0 14.5 15.5	13.5 15.5 15.0 16.0 18.0 19.5 20.0 21.5 20.0 19.0 19.5 18.5 17.0 16.0 17.5 14.5 14.0 14.0 14.0 14.0 16.5 17.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	 8.0	FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0 12.0 9.0 9.0 10.5 11.5 12.0 8.5 9.0 10.0 10.0	MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0 9.0 6.5 4.5 5.5 7.0 6.0 8.5 9.5 10.5 10.5	6.5 7.0 6.5 6.5 7.5 8.0 8.5 11.0 12.0 10.5 8.5 7.5 8.5 7.5 8.5 7.5 9.5 10.5 9.5 6.5 7.0 10.5 10.5 10.5 10.5 10.5 10.5 10.5 10	13.0 13.0 15.0 15.0 12.0 14.0 14.0 16.5 12.5 11.0 13.5 12.0 13.0 13.0 14.0 14.0 14.0 14.0	8.0 10.0 12.0 9.5 8.5 10.5 11.5 8.0 9.5 11.0 9.5 11.0 9.5 11.0 9.5 11.0 9.5 11.0	11.0 11.5 13.5 13.5 10.5 11.0 12.5 14.0 10.5 10.5 10.5 11.5 10.0 11.5 12.0 14.5 13.5 14.0 11.5 12.5 14.0	15.0 17.5 18.5 20.5 21.5 22.5 22.5 23.0 22.0 21.0 21.0 21.5 20.5 18.5 17.5 19.0 20.0 14.5 14.5 15.5 18.0 18.5	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 17.5 16.0 17.0 17.5 17.0 15.0 13.5 15.0 16.0 14.0 14.5 15.5 15.5	13.5 15.5 15.5 16.0 18.0 19.5 20.5 21.5 20.0 18.0 19.0 19.5 17.0 16.0 17.0 18.0 17.0 14.5 14.5 14.5 17.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30		FEBRUARY		7.5 8.0 8.0 8.5 9.5 10.5 13.0 13.0 12.0 9.0 9.0 10.5 11.5 12.0 8.5 9.0 10.0	### MARCH 5.5 6.5 5.5 5.0 5.5 6.0 6.0 8.5 10.5 11.0 9.0 7.0 5.5 6.5 7.0 9.0 6.5 7.0 6.0 6.5 7.0 10.5 8.5 10.5 10.5 7.0	6.5 7.0 6.5 7.5 8.0 8.5 11.0 12.0 12.0 10.5 8.5 7.5 8.5 9.5 10.5 9.5 6.5 7.0 8.5 11.0 11.0 11.0	13.0 13.0 15.0 15.0 12.0 14.0 14.0 16.5 13.5 12.5 11.0 13.0 13.0 17.5 16.5 11.0 14.0 14.0 14.0 14.0 14.0 14.0	8.0 10.0 12.0 9.5 8.5 10.5 11.5 8.0 9.5 11.0 12.5 11.0 9.5 11.0 9.5 12.0	11.0 11.5 13.5 10.5 11.0 12.5 10.5 10.5 10.5 10.5 10.5 11.5 11.5 11	15.0 17.5 17.5 18.5 20.5 21.5 22.5 22.5 23.0 22.0 21.0 21.5 20.5 18.5 17.5 19.0 20.0 19.0 16.0 14.5 14.5 15.5 15.5 18.5	MAY 11.0 13.5 12.5 13.5 15.5 17.0 18.0 19.0 17.5 16.0 17.0 15.0 13.5 15.0 14.0 14.0 14.5 15.5 14.5 14.5	13.5 15.5 16.0 18.0 19.5 20.5 21.0 21.5 20.0 19.5 18.0 19.5 17.0 16.0 17.0 14.5 14.5 14.0 14.5 17.0

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBE	R
1 2 3 4 5	21.0 23.0 22.0 20.0 19.0	15.0 18.0 18.5 17.0 16.5	18.0 20.5 20.5 18.5 18.0	23.0 23.5 23.5 24.0 25.0	18.5 18.5 19.5 20.5 21.0	20.5 21.0 21.5 22.0 23.0	24.5 25.0 23.5 23.0 23.5	22.0 22.0 22.0 21.0 19.5	23.5 23.5 23.0 22.0 21.5	24.0 23.5 24.0 24.0 22.0	21.5 21.5 22.0 21.5 18.5	22.5 23.0 23.0 22.5 20.0
6 7 8 9 10	17.0 19.5 20.0 22.5 24.0	15.5 14.5 15.5 17.0 18.5	16.0 16.5 18.0 19.5 21.0	24.0 23.0 23.0 23.5 25.0	19.5 19.5 18.0 18.0 20.5	21.5 21.0 20.5 20.5 22.5	21.0 24.0 25.5 26.0 26.0	19.0 20.0 21.5 22.5 22.5	20.0 22.0 23.5 24.0 24.0	19.5 19.5 20.0 22.5 22.5	16.0 15.5 16.0 18.0 19.5	18.0 17.5 18.0 20.0 21.0
11 12 13 14 15	25.5 23.5 20.5 18.0 18.5	20.0 20.5 18.0 17.0 16.5	22.5 22.5 19.0 17.5 17.5	24.0 24.0 22.5 21.0 20.5	21.0 19.5 19.0 19.5 19.0	22.5 21.5 21.0 20.0 19.5	25.0 23.0 20.5 20.0 23.0	21.5 20.5 19.5 19.0 18.0	23.5 22.0 20.0 19.0 20.0	22.5 23.0 22.0 21.0 20.0	20.0 20.5 20.0 17.5 17.5	21.0 21.5 21.5 19.5 19.0
16 17 18 19 20	21.5 	18.0 	19.5 	21.5 22.0 24.5 22.0 22.0	18.5 19.0 19.0 18.0 17.5	20.0 20.0 21.5 19.5 19.5	24.5 22.0 20.5 21.0 21.0	20.5 19.0 18.5 17.5	22.0 21.0 19.5 19.0 19.0	18.0 18.0 18.0 20.0	16.0 14.0 14.5 16.5 16.0	17.0 16.0 16.5 17.0 18.0
21 22 23 24 25	23.5 23.5 23.5 25.5	19.0 19.0 19.0 20.5	21.0 21.5 22.5	23.0 21.5	18.0 18.5	20.5 20.0	20.5 20.5 20.0 22.0 23.0	16.5 16.5 18.0 18.5 18.5	18.5 18.5 19.0 20.0 20.5	20.5 19.0 17.0 19.5 18.0	18.0 16.0 16.0 17.0 13.0	19.0 17.5 16.5 18.0 16.5
26 27 28 29 30 31	22.5 22.5 22.5 22.5	20.0 20.0 18.5	21.5 21.0 20.5	20.0 20.5 23.5 23.0 24.0 25.0	18.5 18.5 19.5 20.5 21.0 21.5	19.0 19.5 21.0 21.5 22.0 23.0	22.5 21.5 22.5 22.0 23.0 23.0	18.5 19.0 19.5 20.0 20.0 21.0	20.5 20.5 21.0 21.0 21.5 22.0	13.0 15.5 16.0 15.0 15.0	12.5 12.0 13.0 12.5 11.5	13.0 13.5 14.5 13.5 13.0
MONTH	25.5	14.5	19.7	25.0	17.5	20.9	26.0	16.5	21.1	24.0	11.5	18.2

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER	1		DECEMBER	1		JANUARY	
1 2 3 4 5	9.3 9.7 10.0 9.1 9.7	8.6 8.7 8.6 8.4 8.7	9.0 9.1 9.2 8.6 9.4	12.7 10.2 10.2 11.3 11.9	9.1 8.6 9.1 10.2 10.5	10.4 9.3 9.8 10.7	13.1 	12.0 	12.6 	 	 	
6 7 8 9 10	10.2 9.7 9.9 10.0 8.4	9.4 8.7 8.7 8.3 8.1	9.8 9.4 9.2 9.1 8.3	11.9 12.1 12.7 12.9 12.8	10.0 10.0 10.5 10.3 9.7	10.8 10.9 11.4 11.4	 	 	 	 	 	
11 12 13 14 15	8.4 9.3 9.6 9.7 10.4	8.2 8.3 8.2 8.1 8.8	8.3 8.8 8.9 8.8 9.5	12.2 13.5 13.5 13.0 13.4	9.5 10.3 10.1 10.0 10.2	10.5 11.5 11.3 11.1 11.5	 	 	 	 	 	
16 17 18 19 20	10.7 10.4 9.9 11.2 9.8	8.8 8.3 8.1 8.8 9.0	9.6 9.2 9.0 9.8 9.4	13.5 14.1 14.2 13.7 13.4	10.5 11.2 11.0 10.3 9.3	11.7 12.4 12.6 11.6 11.0	 	 	 	 		
21 22 23 24 25	11.0 11.3 11.2 11.6 12.0	9.3 9.0 9.0 9.7 9.7	9.9 10.0 9.9 10.4 10.5	12.6 11.6 11.9 10.8 10.3	9.0 8.8 8.2 8.3 8.4	10.2 9.9 9.6 9.2 9.0	 	 	 	 		
26 27 28 29 30 31	12.2 12.3 12.5 12.6 12.6 12.7	9.7 9.4 9.6 10.0 9.6 9.3	10.6 10.5 10.8 11.0 10.7	11.5 9.6 10.5 11.4 12.3	8.6 8.9 9.6 10.1 11.1	9.5 9.3 10.0 10.8 11.8	 	 	 	 	 	
MONTH	12.7	8.1	9.6	14.2	8.2	10.7	13.1	12.0	12.6			

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

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUAR	Y		MARCH			APRIL			MAY	
1 2 3 4	 	 	 	12.8 13.3 13.4	11.5 11.3 11.0	12.0 12.2 12.1	12.0 11.6 11.2 10.2	10.1 10.0 9.4 8.8	11.1 10.9 10.3 9.7	11.3 10.9 12.3 12.2	9.9 9.7 9.8 9.5	10.6 10.2 10.7 10.9
5 6				13.3 13.9	10.5	11.7 12.1	12.0	10.2 9.9	11.2	11.7 11.3	8.9	10.3
7 8 9 10	 			14.0 14.0 13.8 14.4	10.6 10.3 9.2 9.2 9.3	12.1 12.2 11.5 11.1 11.4	12.5 12.5 12.0 12.5 12.7	9.7 8.8 9.1 10.2	11.3 11.0 10.3 11.1 11.5	11.3 11.1 10.9 10.4 10.1	8.4 8.4 8.3 8.3	9.6 9.4 9.2 9.0
11 12 13				12.2 12.2	9.7 10.2	10.7 11.2	13.1 13.1 13.6	10.3 10.1 10.2	11.5 11.4 11.8	9.7 9.7 9.3	8.7 7.8 7.7	9.1 8.9 8.4
14 15							13.5 12.5	9.7 9.5	11.6 10.8	9.0 9.2	7.9 8.2	8.5 8.8
16 17 18 19 20			 	15.1 15.2 15.1	12.3 11.8 11.5	13.6 13.5 13.1	12.0 10.3 11.5 12.1 11.5	8.1 8.1 10.3 9.7 9.4	10.1 9.6 10.8 10.9 10.4	9.9 9.6 9.3 8.7 9.5	8.6 8.3 7.8 7.8 8.7	9.2 8.9 8.6 8.3 9.2
21 22 23 24 25	 13.6	 12.0	 12.8	13.5 11.4 11.1	8.4 10.1 9.9	12.4 10.8 10.5	10.6 10.9 11.4 11.4 11.0	9.4 10.5 10.6 9.8 9.9	10.1 10.7 11.0 10.7 10.5	9.5 9.5 9.7 9.2 9.0	9.1 9.1 9.0 8.3 8.3	9.4 9.3 9.2 8.8 8.7
26 27 28 29 30	13.4	12.4 11.7 	12.8 12.7 	10.6 11.4 10.7 11.3 11.9	9.8 9.7 9.9 10.5 10.3	10.2 10.6 10.2 10.9 11.1		10.2 10.2 10.3 9.9 9.9	10.8 10.9 10.9 10.7 10.5	9.4 9.5 10.0 10.1 10.7	8.2 8.3 8.8 8.7 8.9	8.8 9.0 9.3 9.4 9.8
MONTH	13.6	11.7	12.8	15.2	8.4	11.6	13.6	8.1	10.8	12.3	7.7	9.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST		i	SEPTEMBE	ir.
DAY 1 2 3 4 5	MAX 11.6 10.8 10.6 10.7 10.6		9.7 9.1 8.8 9.1 9.2	10.0 10.5 10.4 9.4 9.7		9.0 9.1 8.9 8.5 8.5	MAX 9.3 9.5 9.3 8.6 9.1		MEAN 8.2 8.3 8.3 8.3 8.4			
1 2 3 4	11.6 10.8 10.6 10.7	JUNE 8.1 7.5 7.4 7.8	9.7 9.1 8.8 9.1	10.0 10.5 10.4 9.4	JULY 8.2 8.1 7.6 7.7	9.0 9.1 8.9 8.5	9.3 9.5 9.3 8.6	7.4 7.6 7.6 7.9	8.2 8.3 8.3 8.3	 	SEPTEMBE 	:R
1 2 3 4 5 6 7 8 9	11.6 10.8 10.6 10.7 10.6 9.6 10.6 10.1 9.7	3.1 7.5 7.4 7.8 8.1 8.2 8.4 8.1 7.5	9.7 9.1 8.8 9.1 9.2 8.9 9.2 9.1 8.6	10.0 10.5 10.4 9.4 9.7 9.8 9.9 10.3	8.2 8.1 7.6 7.7 7.9 7.9 8.0 8.1 7.9	9.0 9.1 8.9 8.5 8.5 8.7 8.8 9.1	9.3 9.5 9.3 8.6 9.1 9.3 9.2 9.6	7.4 7.6 7.6 7.9 8.0 8.0 7.6 7.5 7.7	8.2 8.3 8.3 8.3 8.4 8.5 8.5	10.2 10.8 11.2	SEPTEMBE 8.3 8.6 8.4 8.0	9.1 9.4 9.5 9.2
1 2 3 4 5 6 7 8 9 10 11 12 13 14	11.6 10.8 10.6 10.7 10.6 9.6 10.6 10.1 9.7 9.2 8.8 8.6 8.8 9.1	3.1 7.5 7.4 7.8 8.1 8.2 8.4 8.1 7.5 7.2	9.7 9.1 8.8 9.1 9.2 8.9 9.2 9.1 8.6 8.2 7.7 7.6 8.4 8.8	10.0 10.5 10.4 9.4 9.7 9.8 9.9 10.3 10.2 9.4 9.5 9.9	8.2 8.1 7.6 7.7 7.9 7.9 8.0 8.1 7.9 7.3 7.2 7.3 7.7	9.0 9.1 8.9 8.5 8.7 8.8 9.1 8.9 8.1 8.5 8.7	9.3 9.5 9.3 8.6 9.1 9.3 9.2 9.6 10.0 10.5	7.4 7.6 7.6 7.9 8.0 7.6 7.5 7.7 7.6	8.2 8.3 8.3 8.4 8.5 8.4 8.5 8.7 8.9	10.2 10.8 11.2 11.3 11.2 11.3	8.3 8.6 8.4 8.0 7.5 7.6 7.3 7.3	9.1 9.4 9.5 9.2 9.1 9.0 8.9 8.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	11.6 10.8 10.6 10.7 10.6 9.6 10.1 9.7 9.2 8.8 8.6 8.8 9.1 9.7	## STATE ## STA	9.7 9.1 8.8 9.1 9.2 8.9 9.2 9.1 8.6 8.2 7.7 7.6 8.4 8.8 9.3	10.0 10.5 10.4 9.4 9.7 9.8 9.9 10.3 10.2 9.4 9.5 9.9 10.1 9.1 9.0	## 8.2 8.1 7.6 7.7 7.9 7.9 8.0 8.1 7.9 7.3 7.2 7.3 7.7 7.8 7.5 7.7	9.0 9.1 8.9 8.5 8.7 8.8 9.1 8.9 8.1 8.5 8.7 8.3 8.2 8.2 8.1 7.8	9.3 9.5 9.3 8.6 9.1 9.3 9.2 9.6 10.0 10.5 10.6 10.5 10.0 9.1 9.5	7.4 7.6 7.9 8.0 7.6 7.5 7.7 7.6 7.8 7.8 7.9 8.0 7.6	8.2 8.3 8.3 8.3 8.4 8.5 8.7 8.9 8.7 8.5 8.6 8.4 8.5	10.2 10.8 11.2 11.2 11.3 11.2 10.9 8.9 9.9 8.7 9.5 10.3 10.8 9.2	8.3 8.4 8.0 7.5 7.6 7.3 7.8 7.8 8.6 8.7	9.1 9.5 9.2 9.1 9.0 8.9 8.7 8.4 8.9 9.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	11.6 10.8 10.6 10.7 10.6 9.6 10.1 9.7 9.2 8.8 8.6 8.8 9.1 9.7	## STATE ## STA	9.7 9.1 8.8 9.1 9.2 8.9 9.2 9.1 8.6 8.2 7.7 7.6 8.8 9.3 9.1 8.8 9.3	10.0 10.5 10.4 9.4 9.7 9.8 9.9 10.3 10.2 9.4 9.5 9.9 10.1 9.1 9.0 9.2 9.1 8.6 9.2	## 8.2 ## 8.1 ## 7.6 ## 7.7 ## 7.9 ## 7.9 ## 7.3 ## 7.5 ## 7.5 ## 7.5 ## 7.5 ## 7.5 ## 7.5 ## 7.5 ## 7.5 ## 7.5 ## 7.5	9.0 9.1 8.9 8.5 8.7 8.8 9.1 8.9 8.1 8.5 8.7 8.3 8.2 8.2 8.1 7.8 8.5 8.7	9.3 9.5 9.3 8.6 9.1 9.3 9.2 9.6 10.0 10.5 10.6 10.5 9.1 9.5 9.3 10.1 10.3 10.6 11.4 11.4	7.4 7.6 7.9 8.0 7.65 7.7 7.6 7.8 7.8 7.8 7.9 8.0 7.6 7.4 7.4 7.4 8.4 8.4 8.6 9.0 9.0 8.9	8.2 8.3 8.3 8.3 8.4 8.5 8.7 8.9 8.8.7 8.5 8.6 8.2 8.4 9.3 9.7 10.0 10.0	10.2 10.2 10.8 11.2 11.2 11.3 11.2 10.9 8.9 9.9 8.7 9.5 10.3 10.8 9.2 10.1	**SEPTEMBE** 8.3 8.6 8.4 8.0 7.5 7.6 7.3 7.8 7.8 8.6 8.7 8.7 8.6 8.7 8.7 8.6 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7	9.1 9.1 9.5 9.2 9.1 9.0 8.9 8.7 8.4 8.9 9.3 9.1 9.0 9.5