

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA
(Swatara Creek Project)

LOCATION.--Lat 40°39'28", long 76°20'43", Schuylkill County, Hydrologic Unit 02050305, on left bank 500 ft downstream from bridge on U.S. Highway 209. Located on Swatara Coal Company property.

DRAINAGE AREA.--2.92 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those below 10 ft³/s, which are poor. Other data for this project presented in tables on pages 436-482. Diversion upstream from station by limestone treatment system used to aid in the remediation efforts of acid mine drainage.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 50 ft³/s and maximum (*):

Date	Time	Discharge ft ³ /s	Gage Height (ft)	Date	Time	Discharge ft ³ /s	Gage Height (ft)
Mar. 20	2030	*109	*2.40	Aug. 4	1045	92	2.30
June 1	0145	55	2.02	Aug. 11	1415	*109	*2.40
June 21	0015	67	2.12	Sept. 23	0545	107	2.39
July 23	2115	83	2.24				

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	2.0	5.1	4.8	11	2.2	3.6	7.6	3.7	35	4.4	3.3	4.4
2	1.8	4.7	4.4	13	2.1	4.7	7.8	4.1	20	4.0	4.5	5.6
3	1.5	4.5	4.1	10	2.1	e4.5	7.1	3.9	15	3.8	3.9	11
4	1.4	4.4	3.7	9.0	3.2	e4.2	6.5	3.7	18	3.4	21	13
5	1.6	4.4	3.7	7.7	2.9	e4.2	7.1	3.6	13	3.0	14	7.8
6	1.3	6.5	3.0	7.1	e2.5	e4.8	6.2	3.6	11	2.8	21	6.9
7	1.2	5.0	e2.9	6.4	e2.3	e4.5	5.9	3.6	17	3.3	15	6.2
8	1.2	4.8	2.8	6.0	e2.2	4.6	5.6	4.1	14	3.2	11	5.6
9	1.1	4.6	2.7	5.9	e2.1	5.0	5.8	3.8	12	2.8	9.7	5.2
10	1.3	4.4	e2.5	5.6	e2.0	4.9	6.4	3.7	9.9	2.8	9.1	4.8
11	13	4.4	6.7	5.0	e1.9	4.7	16	3.6	8.7	3.9	34	4.4
12	8.3	6.5	9.4	4.6	e1.8	4.6	14	3.5	9.2	2.8	18	4.2
13	4.8	6.2	7.3	4.3	e1.8	5.7	11	3.4	8.9	2.4	11	4.3
14	4.0	5.0	18	4.1	e1.7	6.1	10	3.2	7.1	2.2	8.0	5.8
15	3.5	4.9	14	3.9	e1.7	7.0	8.7	3.1	6.5	2.1	6.2	5.0
16	14	5.6	11	3.8	e1.8	12	7.7	3.1	5.7	2.0	5.1	8.5
17	9.1	11	8.9	3.6	e2.0	23	7.0	3.3	5.3	1.8	4.5	5.1
18	6.9	10	7.5	e3.5	e1.9	32	6.1	3.0	7.6	1.8	5.6	4.6
19	6.1	8.9	6.6	e3.3	e2.0	27	5.4	2.9	5.6	2.0	6.5	9.4
20	5.4	8.2	14	3.2	e1.9	42	4.9	2.9	15	1.7	5.8	7.3
21	4.8	8.0	8.9	3.2	e1.9	42	4.7	3.1	36	4.1	5.2	6.2
22	4.4	10	7.8	e3.0	e3.0	26	4.6	2.8	24	4.6	5.1	6.0
23	4.1	8.7	7.2	e2.8	5.4	17	4.1	2.7	17	15	4.8	37
24	3.7	7.6	6.5	2.7	4.1	13	4.0	6.2	12	12	4.1	16
25	3.7	7.1	6.5	2.6	e3.7	10	3.9	5.3	9.9	5.5	3.9	12
26	8.1	6.5	5.6	2.6	e3.7	10	5.0	10	8.2	4.6	3.9	9.8
27	4.7	6.3	5.1	2.4	3.8	8.7	4.2	8.3	7.0	4.1	3.8	8.1
28	4.2	5.7	4.8	2.3	3.8	7.3	3.9	9.7	6.1	4.5	3.5	7.3
29	4.2	5.4	4.5	2.3	---	9.2	3.9	9.5	5.4	3.5	3.4	6.0
30	4.7	5.2	4.1	2.2	---	8.9	3.8	7.9	4.9	3.1	4.6	5.3
31	5.2	---	4.1	2.1	---	8.1	---	11	---	2.9	3.9	---
TOTAL	141.3	189.6	203.1	149.2	71.5	369.3	198.9	146.3	375.0	120.1	263.4	242.8
MEAN	4.56	6.32	6.55	4.81	2.55	11.9	6.63	4.72	12.5	3.87	8.50	8.09
MAX	14	11	18	13	5.4	42	16	11	36	15	34	37
MIN	1.1	4.4	2.5	2.1	1.7	3.6	3.8	2.7	4.9	1.7	3.3	4.2

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)

MEAN	3.11	3.38	5.55	4.91	4.82	7.73	5.80	4.52	4.74	2.07	1.98	2.53
MAX	7.81	8.40	15.3	10.9	10.4	11.9	8.09	9.19	12.5	3.87	8.50	8.09
(WY)	1997	1997	1997	1998	1998	2003	1998	1998	2003	2003	2003	2003
MIN	1.10	0.86	0.71	1.94	2.55	5.44	3.95	2.05	0.89	0.10	0.26	0.42
(WY)	1999	1999	1999	2002	2003	2002	1999	1999	1999	1999	1999	1998

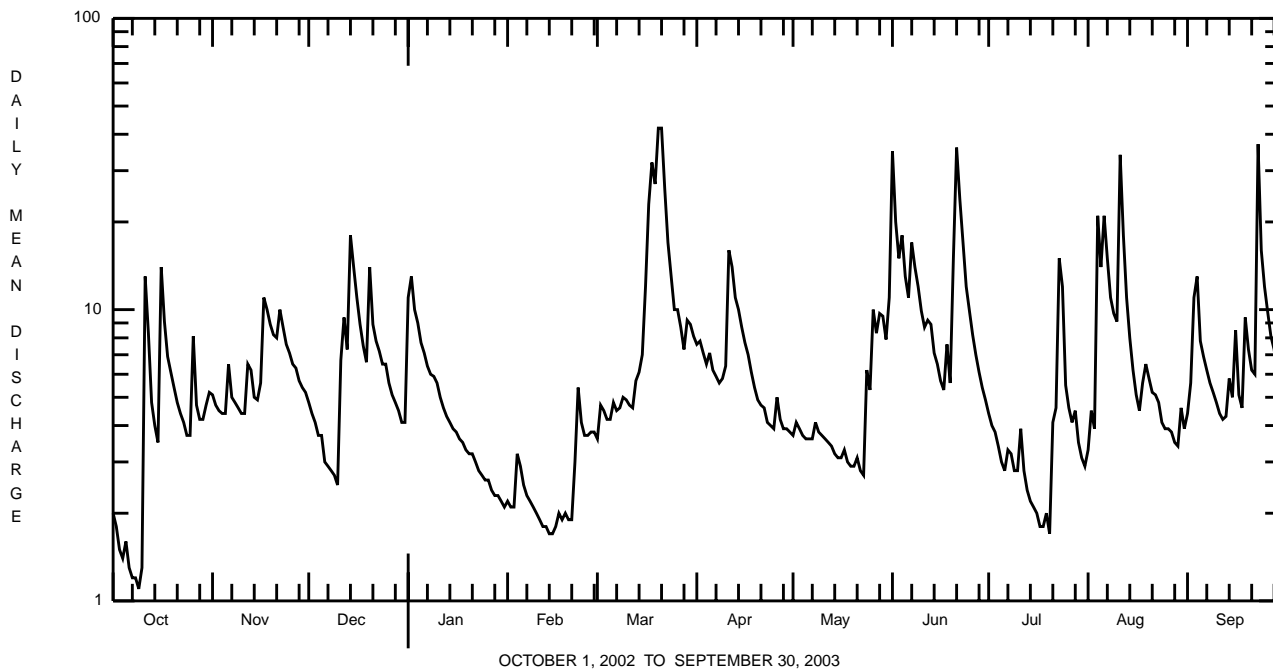
e Estimated.

SWATARA CREEK BASIN

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SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003	
ANNUAL TOTAL	1342.71		2470.5			
ANNUAL MEAN	3.68		6.77		4.26	
HIGHEST ANNUAL MEAN					6.77	2003
LOWEST ANNUAL MEAN					2.61	1999
HIGHEST DAILY MEAN	19	May 18	42	Mar 20,21	a64	Dec 17 2000
LOWEST DAILY MEAN	0.04	Sep 11-13	1.1	Oct 9	0.00	Jul 27 1999
ANNUAL SEVEN-DAY MINIMUM	0.06	Sep 8	1.3	Oct 4	0.00	Jul 29 1999
MAXIMUM PEAK FLOW			a109	Mar 20, Aug 11	a162	Jun 13 1998
MAXIMUM PEAK STAGE			2.40	Mar 20, Aug 11	2.65	Jun 13 1998
INSTANTANEOUS LOW FLOW			1.1	Oct 8-10	0.00	Jul 27 1999
10 PERCENT EXCEEDS	7.7		13		8.8	
50 PERCENT EXCEEDS	2.8		4.9		2.8	
90 PERCENT EXCEEDS	0.44		2.3		0.67	

a From rating curve extended above 44 ft³/s.
 b Several days.



SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued
(Swatara Creek Project)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1996 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1996 to May 2003. (discontinued)

pH: July 1996 to May 2003. (discontinued)

WATER TEMPERATURE: July 1996 to current year.

INSTRUMENTATION.--Water-quality monitor (in situ system). Automatic pumping sampler for stormflow samples since July 1996. Water temperature taken from in-situ transducer beginning May 2003.

REMARKS.--Specific conductance records rated fair. pH records rated fair except for periods Oct. 26-Nov. 5, and Jan. 9-30, which are poor. The pH probe is subject to fowling from precipitation of iron, adhesion of lime on electrodes, and occasional burial by sediment. Water temperature records rated good except for period May 20-Sept. 30, which is poor. Interruptions in the record were due to malfunctions of the instrumentation. Some values for "dissolved" parameters exceed values for the corresponding "total" parameter. These results are within the limits of analytical precision and methods. Other data for the Swatara Creek Project presented in tables on pages 436-482. Figure 8 shows the location of sites sampled as part of the Swatara Creek Project.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 438 microsiemens, Aug. 13, 1999; minimum, 51 microsiemens, July 24, 1997.

pH: Maximum, 8.2, Aug. 20, 2001; minimum, 3.6, Oct. 21-23, 25, Dec. 3, 1996.

WATER TEMPERATURE: Maximum, 23.5°C, July 5, 6, 1999; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 18.5°C, Aug. 4; minimum 0.0°C, many days during winter.

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)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	
OCT											
01...	1600	1028	9801	1.9	400	--	10.0	101	6.7	6.2	
NOV											
21...	1000	1028	89203	7.4	474	5.0	11.7	96	5.3	5.2	
FEB											
27...	1215	1028	89203	4.2	455	2.0	14.3	100	5.9	5.1	
APR											
29...	1000	1028	89203	4.6	435	7.0	11.1	98	5.7	5.6	
JUN											
26...	1100	1028	89203	9.7	454	11	10.1	100	5.2	5.7	
AUG											
25...	1000	1028	89203	4.6	358	--	9.9	97	6.0	6.1	
Date		Specif. conductance, μ S/cm water, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
OCT											
01...	211	15.8	13.6	13.8	7.00	7.0	1.25	1.2	8.60	8.8	
NOV											
21...	153	7.3	7.90	8.3	6.90	7.2	.90	1.0	6.60	7.2	
FEB											
27...	151	1.3	8.10	8.6	5.60	6.0	.90	.9	7.80	7.0	
APR											
29...	153	9.9	9.30	9.6	5.80	6.6	.80	1.0	9.50	7.6	
JUN											
26...	155	13.4	7.40	8.5	6.10	6.8	.90	.8	7.20	6.9	
AUG											
25...	126	13.5	10.2	10.3	6.90	7.0	.90	.9	6.30	7.8	

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

Date	Terbium water, fltrd, µg/L (50586)	Terbium water, unfltrd µg/L (01218)	Thall- ium, water, fltrd, µg/L (01057)	Thall- ium, water, unfltrd µg/L (01059)	Thorium water, fltrd, µg/L (82365)	Thorium water, unfltrd µg/L (82364)	Thulium water, fltrd, µg/L (50587)	Thulium water, unfltrd µg/L (01245)	Tung- sten, water, fltrd, µg/L (01155)	Tung- sten, water, unfltrd µg/L (01154)
OCT 01...	<.005	.030	<.050	<.050	<.020	<.020	<.005	.010	<.020	<.020
NOV 21...	--	--	--	--	--	--	--	--	--	--
FEB 27...	--	--	--	--	--	--	--	--	--	--
APR 29...	--	--	--	--	--	--	--	--	--	--
JUN 26...	--	--	--	--	--	--	--	--	--	--
AUG 25...	--	--	--	--	--	--	--	--	--	--

Date	Vanad- ium, water, fltrd, µg/L (01085)	Vanad- ium, water, unfltrd µg/L (01087)	Ytterb- ium, water, fltrd, µg/L (01194)	Ytterb- ium, water, unfltrd µg/L (01196)	Yttrium water, fltrd, µg/L (01201)	Yttrium water, unfltrd µg/L (01203)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover -able, µg/L (01092)	Uranium natural water, fltrd, µg/L (22703)	Uranium natural water, unfltrd µg/L (28011)
OCT 01...	<.200	<.200	.020	.090	.200	.700	46.0	53.0	.020	.080
NOV 21...	--	--	--	--	--	--	111	109	--	--
FEB 27...	--	--	--	--	--	--	85.0	70.0	--	--
APR 29...	--	--	--	--	--	--	82.0	86.0	--	--
JUN 26...	--	--	--	--	--	--	94.0	95.0	--	--
AUG 25...	--	--	--	--	--	--	80.0	77.0	--	--

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	215	200	208	137	130	135	162	154	159	112	82	100
2	223	214	219	137	131	135	163	162	163	132	94	115
3	231	223	228	144	135	141	168	163	166	145	132	139
4	235	229	234	148	143	145	168	164	166	150	145	148
5	235	220	225	148	142	146	164	148	159	152	149	151
6	239	227	234	142	117	128	164	161	163	149	148	148
7	248	239	243	142	135	139	170	154	163	150	146	149
8	255	247	251	143	141	141	166	164	165	147	145	146
9	262	254	258	145	142	143	172	130	158	146	137	142
10	264	204	252	149	145	146	178	162	169	145	138	142
11	204	83	111	150	146	148	168	79	142	152	145	149
12	135	104	122	152	117	139	107	79	90	154	151	153
13	162	135	150	137	120	130	120	104	114	153	150	152
14	178	161	171	142	137	139	120	88	102	154	150	152
15	183	178	181	144	141	143	142	120	135	157	151	153
16	183	97	134	145	124	141	153	142	149	163	132	155
17	144	112	130	124	109	115	155	153	154	159	135	150
18	156	144	150	128	115	120	155	151	154	168	135	157
19	157	155	156	141	128	136	152	149	151	168	143	159
20	160	156	158	150	141	146	149	95	120	155	151	153
21	162	158	160	153	143	150	139	124	133	160	154	157
22	163	161	162	146	123	136	144	139	142	163	141	159
23	167	161	164	142	129	137	146	120	137	178	140	169
24	169	161	165	147	142	145	122	118	122	174	170	171
25	170	130	163	151	147	149	119	111	115	172	169	171
26	130	88	113	153	151	152	122	117	120	172	160	168
27	138	127	135	154	151	153	122	122	122	169	161	166
28	139	137	138	157	153	155	122	119	121	165	161	164
29	139	132	137	157	156	157	121	114	120	161	159	160
30	135	129	132	157	154	156	120	113	117	165	159	160
31	135	126	131	---	---	---	120	111	117	160	158	159
MONTH	264	83	175	157	109	142	178	79	139	178	82	152
	FEBRUARY			MARCH			APRIL			MAY		
1	162	158	160	159	156	157	137	133	136	154	149	152
2	163	160	161	158	131	145	137	130	134	155	136	148
3	164	162	163	157	131	144	137	132	135	152	140	145
4	166	124	144	161	143	154	140	136	138	154	151	153
5	154	133	143	159	147	157	140	132	134	155	152	154
6	167	147	157	161	144	150	143	137	140	154	152	153
7	161	154	155	172	148	162	144	140	142	155	138	152
8	171	155	161	169	161	166	149	144	147	143	123	134
9	182	151	163	166	160	163	149	137	145	148	143	146
10	161	156	159	177	164	171	145	131	139	152	145	150
11	167	132	158	181	144	172	137	94	118	153	143	150
12	168	133	157	179	175	178	128	119	122	155	148	152
13	169	159	164	175	150	168	141	128	136	156	148	154
14	168	162	164	177	155	171	145	141	144	154	148	150
15	168	164	165	178	148	168	148	145	147	156	151	154
16	173	168	170	175	127	152	150	146	148	153	140	150
17	173	160	166	152	128	143	153	149	151	145	135	140
18	161	158	159	163	119	143	154	153	154	149	145	147
19	162	160	161	144	128	138	156	153	154	155	149	152
20	164	161	162	139	53	116	158	154	156	---	---	---
21	165	161	163	116	86	109	156	150	154	---	---	---
22	161	112	140	123	116	121	152	147	149	---	---	---
23	126	112	116	129	123	125	155	150	153	---	---	---
24	143	126	137	128	125	126	158	153	155	---	---	---
25	148	143	145	130	126	128	159	155	157	---	---	---
26	150	147	148	127	110	122	158	125	141	---	---	---
27	152	149	151	125	115	121	147	131	141	---	---	---
28	156	152	154	128	125	127	153	147	150	---	---	---
29	---	---	---	125	106	118	153	150	152	---	---	---
30	---	---	---	125	112	120	154	151	152	---	---	---
31	---	---	---	133	125	129	---	---	---	---	---	---
MONTH	182	112	155	181	53	144	159	94	144	156	123	149

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	6.8	6.7	6.7	6.4	6.2	6.2	5.7	5.5	5.6	5.9	5.5	5.6
2	6.7	6.6	6.7	6.2	6.1	6.2	5.7	5.7	5.7	5.5	5.3	5.4
3	6.7	6.6	6.7	6.3	6.1	6.2	5.9	5.7	5.8	5.3	5.3	5.3
4	6.7	6.7	6.7	6.1	6.0	6.1	6.0	5.9	6.0	5.3	5.3	5.3
5	6.7	6.6	6.7	6.1	5.8	5.8	6.1	6.0	6.0	5.3	5.3	5.3
6	6.7	6.6	6.6	5.9	5.5	5.6	6.1	6.0	6.1	5.4	5.3	5.4
7	6.7	6.6	6.7	5.7	5.6	5.7	6.2	6.1	6.2	5.4	5.4	5.4
8	6.7	6.6	6.7	5.7	5.6	5.7	6.2	6.2	6.2	5.4	5.4	5.4
9	6.7	6.6	6.6	5.7	5.6	5.7	6.3	6.2	6.2	5.5	5.4	5.5
10	6.9	6.5	6.6	5.6	5.6	5.6	6.2	6.1	6.2	5.5	5.4	5.5
11	6.9	5.4	6.0	5.6	5.5	5.6	6.2	5.7	6.2	5.5	5.5	5.5
12	5.9	5.4	5.7	5.9	5.6	5.7	5.7	5.5	5.6	5.6	5.4	5.5
13	6.0	5.9	5.9	5.6	5.5	5.6	5.7	5.6	5.6	5.5	5.4	5.5
14	5.9	5.8	5.8	5.6	5.6	5.6	5.8	5.3	5.6	5.5	5.5	5.5
15	5.9	5.8	5.8	5.6	5.6	5.6	5.3	5.2	5.2	5.5	5.4	5.4
16	6.3	5.4	5.9	5.6	5.5	5.6	5.2	5.2	5.2	5.5	5.4	5.5
17	5.5	5.4	5.4	5.6	5.5	5.6	5.3	5.2	5.3	5.5	5.4	5.5
18	5.5	5.4	5.4	5.6	5.5	5.5	5.4	5.3	5.3	5.7	5.3	5.5
19	5.5	5.5	5.5	5.5	5.3	5.4	5.4	5.3	5.4	5.5	5.4	5.5
20	5.6	5.5	5.6	5.3	5.3	5.3	6.1	5.3	5.5	5.4	5.4	5.4
21	5.8	5.6	5.7	5.9	5.3	5.3	5.8	5.3	5.3	5.5	5.4	5.5
22	5.9	5.8	5.8	5.5	5.4	5.4	5.4	5.3	5.4	5.5	5.4	5.5
23	6.0	5.9	5.9	5.4	5.4	5.4	5.4	5.3	5.4	5.6	5.3	5.4
24	6.1	5.9	6.0	5.4	5.4	5.4	5.5	5.4	5.4	5.7	5.5	5.6
25	6.1	6.1	6.1	5.4	5.3	5.4	5.5	5.4	5.4	5.7	5.6	5.7
26	6.3	5.9	6.0	5.4	5.4	5.4	5.5	5.5	5.5	5.8	5.7	5.8
27	6.4	6.0	6.2	5.5	5.4	5.4	5.5	5.5	5.5	5.9	5.7	5.7
28	6.6	6.4	6.5	5.5	5.5	5.5	5.5	5.5	5.5	5.9	5.8	5.9
29	6.7	6.6	6.6	5.5	5.5	5.5	5.6	5.5	5.5	5.9	5.8	5.8
30	6.7	6.5	6.5	5.6	5.5	5.5	5.6	5.6	5.6	6.0	5.8	5.9
31	6.6	6.4	6.5	---	---	---	5.6	5.6	5.6	6.0	5.9	5.9
MAX	6.9	6.7	6.7	6.4	6.2	6.2	6.3	6.2	6.2	6.0	5.9	5.9
MIN	5.5	5.4	5.4	5.3	5.3	5.3	5.2	5.2	5.2	5.3	5.3	5.3
	FEBRUARY			MARCH			APRIL			MAY		
1	6.0	5.9	5.9	5.9	5.8	5.9	5.5	5.4	5.5	5.8	5.7	5.8
2	6.0	5.9	5.9	5.9	5.8	5.8	5.6	5.4	5.4	5.8	5.6	5.7
3	6.0	5.9	6.0	5.9	5.8	5.9	5.7	5.5	5.6	5.8	5.6	5.6
4	6.0	5.8	6.0	5.9	5.8	5.9	5.6	5.6	5.6	5.6	5.6	5.6
5	6.1	5.9	5.9	6.0	5.8	5.8	5.6	5.5	5.6	5.7	5.6	5.6
6	6.2	5.9	6.1	6.1	5.9	5.9	5.6	5.5	5.6	5.7	5.7	5.7
7	6.2	6.1	6.2	5.9	5.8	5.9	5.6	5.6	5.6	5.7	5.6	5.7
8	6.3	6.0	6.2	5.9	5.8	5.8	5.6	5.6	5.6	5.8	5.6	5.6
9	6.3	6.0	6.2	5.9	5.7	5.8	5.6	5.6	5.6	5.6	5.6	5.6
10	6.2	6.2	6.2	5.9	5.8	5.8	5.6	5.5	5.6	5.6	5.6	5.6
11	6.2	6.0	6.2	5.8	5.7	5.8	5.7	5.3	5.5	5.6	5.6	5.6
12	6.2	6.0	6.2	5.8	5.7	5.7	5.4	5.3	5.3	5.6	5.6	5.6
13	6.2	6.1	6.2	6.0	5.7	5.7	5.3	5.2	5.3	5.7	5.6	5.6
14	6.2	6.1	6.2	5.9	5.7	5.8	5.3	5.2	5.3	5.7	5.7	5.7
15	6.2	6.2	6.2	6.0	5.7	5.8	5.3	5.2	5.3	5.8	5.7	5.7
16	6.2	6.1	6.1	6.0	5.6	5.7	5.3	5.2	5.3	5.8	5.7	5.8
17	6.1	6.0	6.0	5.7	5.4	5.6	5.4	5.3	5.4	5.8	5.7	5.7
18	6.1	6.1	6.1	5.5	5.2	5.4	5.5	5.4	5.4	5.7	5.7	5.7
19	6.2	6.1	6.2	5.2	5.1	5.1	5.4	5.3	5.4	5.8	5.7	5.7
20	6.3	6.2	6.3	5.6	5.1	5.2	5.5	5.3	5.4	---	---	---
21	6.3	6.2	6.3	5.1	4.8	4.9	5.4	5.4	5.4	---	---	---
22	6.3	6.0	6.2	5.0	4.8	4.9	5.4	5.4	5.4	---	---	---
23	6.2	6.0	6.2	5.1	5.0	5.0	5.5	5.4	5.5	---	---	---
24	6.2	6.1	6.1	5.2	5.1	5.2	5.6	5.5	5.5	---	---	---
25	6.1	6.1	6.1	5.3	5.2	5.3	5.6	5.5	5.6	---	---	---
26	6.1	6.0	6.1	5.4	5.3	5.3	5.7	5.5	5.6	---	---	---
27	6.0	5.8	6.0	5.4	5.3	5.4	5.6	5.5	5.5	---	---	---
28	5.9	5.9	5.9	5.4	5.4	5.4	5.8	5.6	5.7	---	---	---
29	---	---	---	5.4	5.3	5.4	5.8	5.7	5.7	---	---	---
30	---	---	---	5.5	5.3	5.5	5.8	5.7	5.8	---	---	---
31	---	---	---	5.5	5.4	5.5	---	---	---	---	---	---
MAX	6.3	6.2	6.3	6.1	5.9	5.9	5.8	5.7	5.8	5.8	5.7	5.8
MIN	5.9	5.8	5.9	5.0	4.8	4.9	5.3	5.2	5.3	5.6	5.6	5.6

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	16.0	12.5	14.5	7.0	5.5	6.5	5.0	2.5	3.5	5.0	4.0	4.5
2	17.0	14.5	15.5	7.0	5.5	6.0	4.5	2.5	3.5	5.0	4.0	4.5
3	17.5	15.0	16.5	7.0	5.5	6.5	4.0	0.5	1.5	4.5	2.5	4.0
4	16.5	15.5	15.5	7.5	5.5	6.5	2.0	0.0	1.0	5.0	4.5	4.5
5	17.5	14.5	16.5	7.0	6.0	6.5	2.0	0.0	1.0	4.5	4.0	4.0
6	14.5	12.0	13.5	8.0	6.5	7.5	3.0	0.5	2.0	4.5	4.0	4.0
7	15.0	12.5	14.0	7.0	5.0	6.5	1.5	0.0	0.5	4.0	2.5	3.0
8	12.5	10.0	11.5	8.0	5.0	7.0	3.0	0.5	2.0	5.0	3.0	4.0
9	12.0	9.5	11.0	9.5	6.5	8.0	2.0	0.0	0.5	6.0	4.5	5.0
10	13.0	12.0	12.5	11.5	8.5	10.0	1.5	0.0	0.5	5.0	3.0	4.5
11	13.5	13.0	13.0	12.5	10.0	11.5	2.5	0.5	1.5	3.0	1.5	2.0
12	14.0	13.5	13.5	10.0	9.5	9.5	4.5	2.5	4.0	2.5	1.0	1.5
13	13.5	12.5	13.0	9.5	7.0	8.5	5.0	4.5	4.5	2.5	0.5	1.5
14	12.5	9.0	10.5	9.0	6.5	8.0	5.5	4.5	5.0	1.5	0.0	1.0
15	11.0	8.0	9.5	9.0	7.0	8.0	6.5	5.5	6.0	2.0	0.0	1.0
16	11.5	10.5	11.0	8.0	7.0	8.0	6.5	4.5	5.5	1.5	0.0	0.5
17	11.5	10.5	11.0	7.5	6.5	7.0	4.5	3.5	4.0	1.5	0.0	0.5
18	10.5	9.0	10.0	7.5	6.5	7.0	4.5	2.5	3.5	0.5	0.0	0.0
19	10.5	9.0	10.0	7.5	6.0	7.0	6.0	3.5	5.0	1.0	0.0	0.5
20	10.5	8.5	10.0	8.5	6.5	7.5	6.5	5.0	6.0	1.5	0.0	1.0
21	10.0	8.0	9.0	8.0	6.5	7.5	5.5	5.0	5.5	0.5	0.0	0.0
22	9.5	7.0	8.5	8.5	7.0	8.0	6.0	4.5	5.5	0.5	0.0	0.0
23	9.5	7.5	8.5	7.0	6.0	6.5	6.0	5.0	5.5	0.0	0.0	0.0
24	8.0	7.0	7.5	7.5	6.0	7.0	5.0	4.0	4.5	0.5	0.0	0.0
25	8.0	7.5	7.5	8.5	6.0	7.5	4.5	2.0	3.0	1.0	0.5	0.5
26	10.0	7.5	9.0	7.5	6.0	6.5	4.0	2.5	3.5	1.5	0.5	1.0
27	10.5	8.5	9.5	6.0	4.5	5.5	4.0	2.5	3.5	1.0	0.0	0.5
28	9.0	7.5	8.5	5.0	3.5	4.0	4.0	2.0	3.0	1.0	0.0	0.5
29	7.5	4.5	6.5	5.0	3.5	4.5	4.5	3.0	4.0	1.5	1.0	1.0
30	6.0	5.0	5.5	6.5	5.0	5.5	4.5	2.5	3.5	2.0	0.0	1.0
31	7.0	6.0	6.5	---	---	---	5.5	4.5	5.0	2.0	1.0	1.5
MONTH	17.5	4.5	10.9	12.5	3.5	7.2	6.5	0.0	3.5	6.0	0.0	1.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	2.5	1.5	2.0	3.0	2.0	2.5	5.5	3.5	4.5	14.5	10.0	12.0
2	3.5	1.5	2.5	3.5	2.5	3.0	10.0	5.0	7.5	14.5	11.5	12.5
3	4.0	1.5	2.5	2.5	0.0	0.5	10.0	7.0	8.5	14.0	9.5	11.5
4	2.5	1.5	2.0	2.0	0.0	1.0	8.0	6.5	7.0	12.5	9.0	10.5
5	1.5	0.0	1.0	4.5	1.5	3.0	7.0	6.0	6.5	9.5	8.0	9.0
6	1.0	0.0	0.5	3.0	0.5	2.0	7.5	4.5	6.0	11.5	8.0	9.5
7	2.0	0.0	1.0	2.0	0.0	1.0	5.5	2.5	4.0	15.0	9.5	12.0
8	0.5	0.0	0.0	4.5	0.0	2.5	5.0	4.0	4.5	13.5	11.5	12.0
9	1.0	0.0	0.5	5.0	1.0	3.0	5.5	4.5	5.0	12.0	11.0	11.5
10	1.0	0.5	1.0	2.5	0.5	1.0	7.5	5.0	6.0	13.0	10.5	12.0
11	1.0	0.0	0.5	2.5	0.0	1.5	6.0	5.5	6.0	14.0	11.5	12.5
12	0.5	0.0	0.0	4.5	2.0	3.0	9.0	6.0	7.5	13.0	10.0	11.5
13	0.5	0.0	0.0	5.0	2.5	3.5	9.0	6.5	7.5	10.5	9.5	10.0
14	0.5	0.0	0.5	4.0	1.0	2.5	10.0	6.0	8.0	11.5	9.0	10.0
15	1.0	0.0	0.5	6.0	2.0	3.5	12.0	7.5	9.5	11.0	8.0	9.5
16	0.0	0.0	0.0	7.0	3.0	4.0	13.5	8.5	10.5	10.5	9.5	10.0
17	0.0	0.0	0.0	6.5	4.0	5.0	10.0	6.5	8.0	10.0	9.0	9.5
18	0.0	0.0	0.0	6.5	4.5	5.5	7.0	6.0	6.5	11.5	9.5	10.0
19	0.5	0.0	0.5	6.5	5.0	5.5	10.5	7.0	8.5	13.0	7.5	10.5
20	1.5	0.5	1.0	5.0	3.0	4.5	11.0	6.5	9.0	11.0	8.5	10.0
21	2.0	0.0	1.0	7.5	4.0	6.0	9.5	8.0	9.0	10.5	10.0	10.0
22	1.0	0.5	1.0	8.0	6.5	7.0	11.0	8.0	9.5	10.0	9.5	9.5
23	1.5	0.5	1.0	8.0	6.0	7.0	9.5	6.5	7.5	10.0	9.5	9.5
24	1.5	0.0	1.0	8.5	6.0	7.0	10.5	5.0	7.5	10.0	9.5	10.0
25	2.0	0.0	1.0	9.5	6.0	8.0	11.5	6.0	8.5	10.0	10.0	10.0
26	1.0	0.0	0.5	9.0	6.5	7.5	10.0	9.5	9.5	10.5	10.0	10.5
27	1.5	0.5	1.0	9.0	5.5	7.5	13.0	8.5	10.0	10.0	9.5	10.0
28	3.0	1.5	2.0	8.5	6.5	7.5	14.0	7.0	10.5	10.0	9.5	10.0
29	---	---	---	9.5	8.0	8.5	12.5	9.0	10.5	11.0	9.5	10.0
30	---	---	---	8.0	4.5	6.0	13.5	8.5	10.5	11.5	10.0	10.5
31	---	---	---	6.5	4.0	5.0	---	---	---	11.5	10.5	10.5
MONTH	4.0	0.0	0.9	9.5	0.0	4.4	14.0	2.5	7.8	15.0	7.5	10.5

