

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA
(Swatara Creek Project)

LOCATION.--Lat 40°39'34", long 76°20'50", Schuylkill County, Hydrologic Unit 02050305, on left bank 500 ft upstream from bridge on U.S. Highway 209, 0.5 mi north of Newtown.

DRAINAGE AREA.--2.58 mi².

PERIOD OF RECORD.--August 1995 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1996 to current year.

pH: October 1996 to current year.

WATER TEMPERATURE: October 1996 to current year.

INSTRUMENTATION.--Water-quality monitor (in situ system).

REMARKS.--Interruptions in the record were due to malfunctions of the instrumentation. Fixed-time, base flow, and stormflow samples collected.

Analytical data from samples are used to determine effectiveness of various limestone treatment systems used to aid in the remediation efforts of acid mine drainage. Data collected prior to construction dates of upstream treatment, Nov. 14, 1995, are considered untreated water. 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 this project presented in tables on pages 342-386. Figure 8 shows the location of sites sampled as part of the Swatara Creek Project.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 414 microsiemens, Aug. 13, 1999; minimum, 42 microsiemens, Nov. 8, 1996.

pH: Maximum, 7.7, Mar. 21, 1997; minimum, 3.3, Jan. 1, 1997.

WATER TEMPERATURE: Maximum, 21.0°C, July 15-18, Aug. 16, 1997, Aug. 11, 1998, July 5, Aug. 1, 14, 1999; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 414 microsiemens, Aug. 13; minimum, 65 microsiemens, Sept. 30.

pH: Maximum, 6.6, Sept. 16; minimum, 4.6, Jan. 24-26, Aug. 13, Sept. 7.

WATER TEMPERATURE: Maximum, 21.0°C, July 5, Aug. 1, 14; minimum 0.0°C, several days during winter.

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

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	DISCHARGE INST. CUBIC FEET PER SECOND (00061)	SPECIFIC CONDUCTANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	ACIDITY TOTAL HEATED AS (MG/L) (70508)	
OCT												
30...	1215	1028	9813	.73	183	5.8	5.9	462	8.6	12.0	100	.80
NOV												
24...	1115	1028	9813	.54	201	5.5	5.5	579	6.9	10.0	86	3.8
DEC												
31...	1300	1028	9813	.35	192	5.6	--	--	.6	12.0	83	2.6
JAN												
27...	1445	1028	9813	14	132	4.9	--	498	5.3	11.0	88	11
FEB												
26...	1530	1028	9813	2.3	128	5.8	--	582	3.2	--	--	6.4
MAR												
18...	1045	1028	9813	5.5	118	5.3	--	311	6.8	13.0	110	5.6
APR												
13...	1145	1028	9813	3.8	121	5.5	--	480	8.9	--	--	6.0
MAY												
24...	1115	1028	9813	2.0	137	5.3	--	414	13.1	10.0	99	2.4
JUN												
22...	1230	1028	9813	.67	182	5.0	--	440	16.1	10.0	100	4.2
JUL												
13...	1130	1028	9813	.08	194	5.4	--	411	16.5	8.9	--	9.8
AUG												
24...	1145	1028	9813	.01	198	5.2	--	432	16.2	6.7	70	3.8
SEP												
15...	1230	1028	9813	.22	245	5.3	--	427	16.2	9.0	92	3.2

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

DATE	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)
OCT												
30...	13	13	9.3	9.3	6.0	6.0	1.5	1.4	5	66	8.4	<.2
NOV												
24...	14	14	12	12	5.3	5.5	1.7	<1.0	3	76	7.3	<.2
DEC												
31...	18	18	11	11	5.5	5.5	--	--	3	83	--	--
JAN												
27...	5.8	5.8	5.3	5.3	5.8	5.8	--	--	2	42	--	--
FEB												
26...	7.3	7.3	5.1	5.1	5.4	5.4	--	--	3	41	--	--
MAR												
18...	5.8	5.6	3.7	3.6	8.0	6.8	--	--	3	33	--	--
APR												
13...	5.7	5.6	3.9	3.6	6.0	6.0	--	--	3	33	--	--
MAY												
24...	7.8	7.8	5.5	5.5	6.2	6.2	--	--	3	44	--	--
JUN												
22...	12	12	9.4	9.4	6.8	6.8	--	--	3	72	--	--
JUL												
13...	17	17	13	13	7.2	7.1	--	--	3	90	--	--
AUG												
24...	19	19	14	14	6.8	6.8	1.4	1.4	3	91	8.8	--
SEP												
15...	20	20	15	15	7.3	7.2	1.3	1.5	3	88	9.5	--

DATE	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 SUS- PENDE (MG/L) (00530)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)
OCT												
30...	6.9	60	.060	<.020	.18	.020	<200	<200	<40	<40	27	27
NOV												
24...	7.4	<2	.050	<.020	.20	<.020	330	220	<4	<4	28	28
DEC												
31...	--	<2	--	--	--	--	200	<200	--	--	--	--
JAN												
27...	--	6	--	--	--	--	860	700	--	--	--	--
FEB												
26...	--	4	--	--	--	--	680	<200	--	--	--	--
MAR												
18...	--	18	--	--	--	--	1000	<200	--	--	--	--
APR												
13...	--	6	--	--	--	--	650	<200	--	--	--	--
MAY												
24...	--	<2	--	--	--	--	820	300	--	--	--	--
JUN												
22...	--	<2	--	--	--	--	2000	450	--	--	--	--
JUL												
13...	--	70	--	--	--	--	3200	300	--	--	--	--
AUG												
24...	--	<2	--	--	--	--	290	220	--	--	--	--
SEP												
15...	--	6	--	--	--	--	310	<200	--	--	--	--

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SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	210	199	205	201	193	196	174	168	171	233	224	229
2	212	204	208	201	196	198	179	172	174	263	230	249
3	217	208	213	202	195	200	180	171	175	274	100	171
4	214	165	186	205	196	201	178	170	174	153	113	138
5	185	170	176	205	196	201	177	169	174	162	153	158
6	192	182	188	207	197	203	178	168	173	172	161	168
7	199	188	195	209	199	204	178	167	173	169	160	165
8	200	97	140	208	198	203	178	162	172	174	168	171
9	133	105	121	207	196	203	169	161	165	171	102	139
10	119	81	99	208	197	205	173	167	170	138	112	129
11	139	117	129	200	160	174	174	166	170	145	136	141
12	153	139	146	181	162	172	177	168	172	147	142	144
13	158	150	154	218	178	204	174	168	171	145	134	140
14	158	115	129	224	194	206	174	166	170	145	135	139
15	153	138	145	223	199	211	176	169	173	144	138	141
16	160	150	155	224	202	212	175	163	170	146	138	142
17	163	156	161	223	191	203	170	160	166	151	145	148
18	170	160	164	221	202	209	169	158	164	219	116	152
19	176	162	167	210	201	205	169	164	166	161	152	156
20	182	164	171	219	201	209	169	160	165	156	150	152
21	175	167	171	207	191	196	169	160	165	155	150	152
22	181	167	174	208	193	201	167	144	153	166	153	159
23	180	173	176	205	195	199	166	145	157	173	153	168
24	182	174	177	210	199	205	176	164	170	161	124	144
25	186	178	181	213	206	210	186	172	180	160	143	152
26	185	180	183	210	113	145	200	181	192	144	134	139
27	194	182	188	147	121	137	199	187	192	185	130	134
28	197	186	190	160	145	153	191	180	186	133	121	128
29	196	181	188	166	158	162	185	172	177	127	121	124
30	194	181	188	171	163	168	177	166	172	127	122	124
31	198	188	193	---	---	---	231	174	203	126	122	124
MONTH	217	81	170	224	113	193	231	144	173	274	100	152
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	126	121	123	126	114	121	133	124	128	141	137	139
2	121	95	106	131	123	127	132	126	129	143	138	140
3	115	106	112	132	103	128	133	130	131	142	139	141
4	117	111	114	117	87	107	132	129	131	144	139	141
5	119	113	117	120	112	116	134	127	131	145	138	142
6	121	116	118	124	115	119	135	131	133	147	142	143
7	122	117	120	133	123	128	136	132	133	145	140	142
8	125	117	121	136	128	132	136	133	134	144	116	126
9	126	121	124	134	130	132	136	107	124	133	124	128
10	126	120	124	135	130	132	118	104	111	137	131	135
11	125	120	122	136	132	134	121	111	116	141	136	138
12	123	109	119	139	134	136	117	111	114	143	138	140
13	123	112	118	139	133	136	123	115	119	142	138	140
14	129	121	126	137	128	134	124	120	122	144	139	141
15	130	124	127	138	129	134	125	122	124	146	141	143
16	128	123	126	138	130	135	126	121	123	147	142	144
17	128	118	123	134	113	127	130	123	127	147	142	144
18	127	120	123	120	108	114	133	128	130	147	143	145
19	128	122	126	118	113	115	135	131	132	148	122	133
20	131	125	128	120	115	117	135	122	128	144	132	137
21	131	126	128	121	90	114	135	126	131	151	140	145
22	138	126	131	111	91	104	135	126	129	155	145	151
23	142	126	133	120	108	115	133	124	128	157	143	149
24	132	126	130	124	118	121	132	123	128	149	115	135
25	132	127	129	128	122	125	134	130	132	138	121	131
26	135	127	131	128	124	126	135	131	133	145	138	141
27	136	131	134	129	125	127	136	132	134	149	142	145
28	135	109	122	127	122	124	137	133	135	156	146	151
29	---	---	---	129	124	126	139	134	136	160	153	156
30	---	---	---	131	127	129	140	136	137	167	158	161
31	---	---	---	133	128	131	---	---	---	170	162	165
MONTH	142	95	123	139	87	125	140	104	128	170	115	142

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SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	173	165	168	226	213	220	---	---	---	---	---	---
2	174	167	170	225	215	220	---	---	---	---	---	---
3	174	165	169	227	215	222	---	---	---	---	---	---
4	177	166	172	353	223	268	---	---	---	---	---	---
5	181	171	177	---	---	---	---	---	---	---	---	---
6	186	178	180	---	---	---	---	---	---	202	124	168
7	187	179	183	---	---	---	---	---	---	208	77	121
8	191	183	187	---	---	---	---	---	---	186	146	171
9	195	187	191	---	---	---	---	---	---	205	184	195
10	197	190	194	---	---	---	---	---	---	216	201	209
11	195	187	191	---	---	---	---	---	---	232	214	220
12	200	193	197	---	---	---	---	---	---	236	225	228
13	202	194	199	---	---	---	414	129	247	246	230	235
14	198	159	187	297	261	278	175	129	149	265	231	239
15	189	166	177	304	232	279	203	175	190	251	230	240
16	200	188	194	298	257	281	217	200	208	235	65	131
17	202	119	175	314	285	301	---	---	---	175	101	133
18	160	140	151	330	301	315	---	---	---	211	174	197
19	174	160	168	338	306	326	---	---	---	224	208	214
20	180	172	176	---	---	---	---	---	---	224	199	217
21	183	175	180	---	---	---	---	---	---	204	154	180
22	187	178	183	---	---	---	---	---	---	165	129	148
23	194	184	188	---	---	---	---	---	---	183	160	171
24	201	191	196	---	---	---	---	---	---	191	178	184
25	205	196	202	---	---	---	---	---	---	201	190	195
26	211	200	206	---	---	---	---	---	---	208	197	202
27	216	207	211	---	---	---	---	---	---	209	202	205
28	219	208	213	---	---	---	---	---	---	205	194	200
29	212	202	207	---	---	---	---	---	---	196	114	186
30	219	208	214	---	---	---	---	---	---	128	65	87
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	219	119	187	353	213	271	414	129	198	265	65	187
YEAR	414	65	162									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	5.5	5.5	5.5	5.9	5.9	5.9	5.7	5.6	5.7	5.6	5.6	5.6
2	5.6	5.5	5.5	5.9	5.8	5.9	5.7	5.6	5.6	5.6	5.5	5.6
3	5.5	5.5	5.5	5.9	5.8	5.8	5.6	5.6	5.6	5.6	5.4	5.5
4	5.8	5.4	5.6	5.8	5.8	5.8	5.6	5.6	5.6	5.6	5.5	5.6
5	5.8	5.7	5.8	5.9	5.8	5.8	5.6	5.6	5.6	5.6	5.6	5.6
6	5.7	5.6	5.7	5.8	5.7	5.8	5.6	5.6	5.6	5.6	5.6	5.6
7	5.7	5.6	5.6	5.8	5.7	5.7	5.6	5.5	5.6	5.6	5.6	5.6
8	6.3	5.6	5.9	5.7	5.7	5.7	5.6	5.6	5.6	5.6	5.6	5.6
9	6.4	6.2	6.3	5.7	5.7	5.7	5.7	5.6	5.6	5.6	5.4	5.5
10	6.5	6.1	6.3	5.7	5.6	5.7	5.6	5.6	5.6	5.6	5.5	5.5
11	6.5	6.5	6.5	6.1	5.7	5.9	5.6	5.6	5.6	5.6	5.6	5.6
12	6.5	6.5	6.5	6.0	5.8	5.9	5.6	5.6	5.6	5.6	5.6	5.6
13	6.5	6.5	6.5	5.8	5.7	5.7	5.6	5.6	5.6	5.6	5.6	5.6
14	6.5	6.3	6.4	5.7	5.7	5.7	5.6	5.5	5.6	5.7	5.6	5.7
15	6.4	6.3	6.3	5.7	5.6	5.6	5.6	5.5	5.6	5.7	5.7	5.7
16	6.3	6.3	6.3	5.7	5.6	5.6	5.6	5.6	5.6	5.7	5.7	5.7
17	6.3	6.2	6.3	5.6	5.6	5.6	5.6	5.6	5.6	5.7	5.7	5.7
18	6.3	6.2	6.3	5.6	5.5	5.6	5.6	5.5	5.6	5.7	5.3	5.6
19	6.3	6.1	6.2	5.5	5.3	5.4	5.6	5.6	5.6	6.1	5.4	5.8
20	6.1	6.0	6.1	5.5	5.3	5.4	5.6	5.5	5.6	6.1	6.0	6.0
21	6.1	6.1	6.1	5.6	5.5	5.6	5.6	5.6	5.6	6.0	5.9	6.0
22	6.1	6.0	6.1	5.6	5.5	5.6	5.6	5.5	5.5	6.0	5.7	5.8
23	6.1	6.0	6.0	5.6	5.5	5.5	5.7	5.6	5.6	5.7	5.5	5.6
24	6.0	6.0	6.0	5.7	5.5	5.5	5.6	5.6	5.6	5.9	4.6	5.1
25	6.0	5.9	6.0	5.5	5.5	5.5	5.6	5.6	5.6	4.6	4.6	4.6
26	5.9	5.9	5.9	6.0	5.4	5.7	5.6	5.6	5.6	4.8	4.6	4.7
27	5.9	5.8	5.8	5.9	5.8	5.8	5.6	5.6	5.6	5.0	4.8	4.9
28	5.9	5.8	5.8	5.8	5.7	5.8	5.6	5.6	5.6	5.2	5.0	5.1
29	5.8	5.8	5.8	5.7	5.7	5.7	5.6	5.6	5.6	5.4	5.1	5.3
30	6.0	5.8	5.9	5.7	5.7	5.7	5.6	5.5	5.6	5.5	5.4	5.5
31	6.0	5.9	5.9	---	---	---	5.6	5.6	5.6	5.6	5.5	5.6
MONTH	6.5	5.4	6.0	6.1	5.3	5.7	5.7	5.5	5.6	6.1	4.6	5.5

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WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	16.0	12.0	14.5	9.0	6.5	8.0	8.0	6.0	7.0	.5	.0	.5
2	13.0	10.5	12.0	9.0	6.0	8.0	7.5	4.5	6.0	1.5	.0	.5
3	11.5	10.5	11.0	7.5	4.5	6.0	9.0	6.0	7.5	.5	.0	.0
4	11.0	10.5	10.5	6.5	4.0	5.5	11.0	8.0	9.5	.0	.0	.0
5	13.0	10.5	11.5	6.5	4.0	5.0	11.5	9.5	10.5	.0	.0	.0
6	12.0	10.0	11.5	6.5	5.0	5.5	11.5	8.5	10.0	.0	.0	.0
7	12.5	12.0	12.5	7.5	5.0	6.0	11.5	9.5	10.5	.0	.0	.0
8	14.5	12.5	13.5	7.5	6.5	7.0	9.5	8.0	8.5	.5	.0	.0
9	13.5	13.0	13.5	8.0	5.5	7.0	8.0	5.0	6.5	.5	.0	.0
10	13.5	12.0	13.0	8.5	5.0	6.0	6.0	3.5	5.0	.0	.0	.0
11	14.5	11.5	13.0	9.5	6.5	8.5	5.5	3.5	4.5	.0	.0	.0
12	14.5	12.0	13.0	7.5	5.5	6.5	5.0	2.5	4.0	.5	.0	.5
13	14.5	12.5	13.5	7.0	5.0	6.0	5.0	3.5	4.0	.5	.0	.5
14	13.5	11.5	12.5	7.5	5.5	6.5	4.5	2.0	3.5	.0	.0	.0
15	12.0	10.0	11.0	8.5	6.0	7.5	4.0	1.5	2.5	.5	.0	.0
16	12.0	8.5	10.0	7.5	5.5	6.5	4.0	2.0	3.0	.5	.5	.5
17	12.5	8.0	10.0	8.5	7.0	7.5	5.0	3.5	4.0	1.0	.5	.5
18	14.0	9.5	11.5	7.0	5.0	6.0	3.5	2.0	3.0	1.0	.0	.5
19	14.0	11.0	12.5	6.5	4.0	5.5	4.5	2.0	3.0	.5	.0	.0
20	12.5	10.0	11.0	7.5	6.5	7.0	5.5	4.0	5.0	2.5	.0	1.5
21	11.0	8.5	10.0	6.5	5.0	5.5	6.5	5.5	6.0	3.0	2.0	2.5
22	9.0	7.5	8.5	6.0	4.5	5.0	8.0	1.0	5.5	3.5	2.0	3.0
23	10.0	6.5	8.0	6.5	3.5	5.0	1.5	.5	1.0	4.0	3.0	3.5
24	11.5	7.5	9.0	7.0	5.5	6.5	2.0	.5	1.0	5.0	2.0	4.0
25	11.0	7.5	9.0	6.0	4.0	5.0	1.0	.5	.5	5.5	5.0	5.5
26	12.0	8.5	10.0	7.0	5.5	6.0	1.0	.0	.5	5.5	4.5	5.0
27	11.0	10.0	10.5	6.5	4.5	5.5	1.0	.0	.5	5.5	4.0	4.5
28	12.0	10.0	11.0	7.5	4.0	5.5	2.0	1.0	1.5	6.5	4.5	5.5
29	11.5	8.0	10.0	9.0	5.0	7.0	2.0	1.5	2.0	5.0	3.5	4.5
30	9.5	6.5	8.0	9.0	6.5	7.5	2.0	.5	1.0	5.0	3.0	4.0
31	9.5	6.5	7.5	---	---	---	.5	.0	.5	3.0	1.5	2.5
MONTH	16.0	6.5	11.1	9.5	3.5	6.3	11.5	.0	4.4	6.5	.0	1.6
	FEBRUARY			MARCH			APRIL			MAY		
1	4.0	1.0	2.5	4.0	2.5	3.5	8.5	7.0	8.0	13.0	7.0	10.0
2	4.5	3.5	4.0	5.0	2.0	3.0	10.5	8.0	9.0	13.5	7.0	10.0
3	5.5	4.0	4.5	7.0	2.5	4.5	11.0	8.0	9.5	11.0	8.0	10.0
4	5.5	4.0	5.0	7.0	2.0	3.5	12.5	8.0	9.5	13.0	9.5	11.5
5	5.0	3.5	4.0	4.0	1.5	3.0	10.0	6.0	8.0	16.0	10.5	13.0
6	5.0	4.0	4.5	3.5	2.0	3.0	10.0	5.0	7.5	12.5	11.5	12.0
7	4.5	3.0	4.0	3.5	.5	2.0	12.0	6.5	9.0	12.0	11.5	11.5
8	4.5	3.0	4.0	2.5	.5	1.5	13.5	7.5	10.0	13.5	11.0	12.0
9	5.0	2.5	3.5	3.0	1.0	2.0	9.5	7.0	8.0	14.5	10.5	12.0
10	5.5	3.5	4.0	4.0	2.0	2.5	10.0	6.0	7.5	14.5	9.5	11.5
11	5.5	3.0	4.5	4.0	1.0	2.0	6.0	4.5	5.5	15.0	9.0	12.0
12	7.0	4.0	5.0	3.0	1.5	2.0	9.0	6.0	7.0	15.5	10.0	12.5
13	4.0	2.0	3.0	4.5	1.5	2.5	9.5	5.0	7.0	12.0	10.0	11.0
14	2.5	1.0	2.0	3.5	1.0	2.5	10.5	5.5	7.5	13.5	9.0	11.0
15	4.0	1.0	2.5	4.5	1.5	3.0	9.5	6.0	8.0	14.0	8.5	11.0
16	5.5	2.5	4.0	5.5	1.5	3.0	8.5	7.5	8.0	13.0	9.0	11.0
17	4.5	4.0	4.5	7.0	3.0	4.5	8.0	7.0	7.5	14.0	9.5	11.5
18	5.5	4.0	4.5	7.5	4.5	5.5	9.0	6.5	7.5	15.5	11.0	13.0
19	5.0	3.0	4.0	6.0	4.0	4.5	9.0	5.5	7.0	15.5	13.0	14.0
20	3.5	2.0	2.5	6.5	3.5	4.5	8.0	6.0	6.5	15.0	11.0	13.0
21	3.0	.5	1.5	4.5	3.5	4.0	8.5	5.5	7.0	15.0	9.5	12.0
22	1.5	.0	.5	4.5	3.5	4.0	11.0	7.0	9.0	15.0	10.5	13.0
23	1.0	.0	.5	6.0	3.5	5.0	9.0	7.5	9.0	13.5	12.5	13.0
24	2.0	.0	1.0	7.5	4.5	6.0	10.0	5.5	7.5	14.5	11.5	13.0
25	2.5	.5	1.5	7.0	4.5	5.5	10.5	5.0	7.5	12.5	10.5	11.5
26	3.5	1.0	2.0	7.0	3.5	5.0	12.5	5.5	9.0	12.5	10.0	11.5
27	3.5	1.0	2.5	8.0	4.0	6.0	12.0	6.5	9.0	14.0	10.5	12.0
28	3.5	3.0	3.5	7.5	5.0	6.0	11.5	7.0	9.0	15.0	10.0	12.5
29	---	---	---	9.5	5.5	7.0	12.5	6.5	9.5	16.5	11.5	14.0
30	---	---	---	9.0	5.5	7.0	12.5	7.0	9.5	17.5	12.5	14.5
31	---	---	---	10.0	4.5	7.5	---	---	---	17.5	13.0	15.0
MONTH	7.0	.0	3.2	10.0	.5	4.0	13.5	4.5	8.1	17.5	7.0	12.1

