

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT
EVALUATION OF LIMESTONE TREATMENT OF ACIDIC MINE DRAINAGE
IN SWATARA CREEK BASIN, SCHUYLKILL COUNTY, PENNSYLVANIA**

Acidic mine drainage (AMD) from abandoned anthracite mines has degraded water resources in the 48 mi² northern Swatara Creek Basin. To neutralize the AMD, with a goal of remediating approximately 25 miles (67 percent) of degraded streams in the basin, a variety of limestone treatment systems have been constructed (fig. 9). Most of the limestone treatment systems were installed during fall 1996 and spring 1997. The type and size of the treatment system was based on streamflow rates and chemistry determined by preliminary monitoring and field trials. The treatments, which include limestone-sand dosing, open limestone channels, anoxic and oxic limestone drains, and limestone diversion wells, were constructed by the Schuylkill County Conservation District and the Swatara Creek Watershed Association, with technical assistance from the USGS and the Pennsylvania Department of Environmental Protection (PaDEP). Each treatment has different advantages and disadvantages; however, all suffer from possible complication associated with variability of flow rates and chemistry of the AMD-contaminated water and from uncertainties about efficiency and longevity of the treatment.

To resolve uncertainties about treatment designs (efficiency and longevity), limestone dissolution in response to variations in water chemistry and coating (armoring) by iron and aluminum hydroxides, and appropriate uses of the various limestone treatments, the USGS has established monitoring stations upstream and downstream of each treatment. During base-flow and high-flow conditions in 1995-2001, data on discharge rate and water quality at 48 stations in the Swatara Creek basin and 5 stations in adjacent watersheds (table 4) were collected to characterize untreated mine drainage, treatment-system performance, and cumulative downstream effects. In spring-summer 1996, two streamflow stations on Swatara Creek, Site C3, at Newtown (station 0157155014) and Swatara Creek near Ravine (station 01571820) were installed for continuous streamflow and water-quality monitoring. The data for these stations indicate cumulative effects of AMD remediation throughout the northern Swatara Creek basin.

Limestone sand dosing and open limestone channels are the simplest treatment systems where limestone is added directly to the stream channel semiannually or less frequently. Limestone sand, which can dissolve rapidly because of its small size (<1/8 inch), was dumped into Coal Run (14 tons) between stations C4 and C6 on September 4, 1996, and into Lorberry Creek (150 tons) below station E2 on February 13-14, 1997 (fig. 9). An open limestone channel was constructed within a 110-ft long segment of Swatara Creek at station B2 (fig. 9) on March 21, 1997. A total of 44 tons of sand-size fragments and 70 tons of larger fragments (1-4 inches) were installed as a series of alternating berms extending part way across the 15-ft-wide channel from opposite sides of the stream.

A limestone drain is another relatively simple treatment method, which involves the burial of limestone in air-tight trenches that intercept acidic discharge water. Keeping oxygen out of contact with the discharge water minimizes the potential for oxidation of ferrous iron and the consequent precipitation of ferric-iron armoring as iron hydroxides. Furthermore, keeping carbon dioxide within the drain can enhance limestone dissolution and alkalinity production. Limestone drains were constructed on March 15, 1995, at station E3 to treat a small acidic discharge (10-30 gpm, oxic inflow; 44 tons limestone) along Lower Rausch Creek May 21, 1997, at station A1 to treat a large discharge (50-200 gpm, anoxic inflow; 400 tons limestone) at the headwaters of Swatara Creek; and on May 20, 2000, at station C0-1 to treat a large discharge (50-500 gpm; oxic inflow; 880 tons limestone) near the headwaters of Swatara Creek (fig. 9).

In a limestone diversion well, acidic water is diverted from upstream points and the hydraulic force of the piped flow is deflected upward through limestone fragments inside 4-ft diameter "wells." Hydraulic churning abrades limestone forming fine particles and preventing the buildup of iron or aluminum hydroxides armoring. On November 14, 1995, a pair of diversion wells was installed to treat water diverted from Swatara Creek at station C2; on July 13, 1997, a single diversion well was installed to treat water from Martin Run at station C8 (fig. 9); and, on November 18-19, 1998, another pair of diversion wells was installed to treat water diverted from Lorberry Creek above station E2-0. Approximately 1 ton of limestone is consumed weekly by each operating diversion well.

Constructed wetlands for treatment of mine drainage can attenuate the transport of dissolved and suspended pollutants by promoting the production of alkalinity and the precipitation and deposition of iron and other metals. For net acidic water (acidity > alkalinity), wetlands that have compost and/or limestone substrates can be appropriate. The organic matter in the compost provides a substrate for plant rooting and for microbial reduction of sulfate. In December 1998, a 3-acre aerobic wetland system with limestone and compost substrate was installed near the mouth of Lower Rausch Creek between stations E3-1 and E3-2, and in December 2001, a 3-acre aerobic wetland system that intercepts outflow from the limestone diversion wells on Lorberry Creek below station E2-0 began operation. At the inflow to the Lorberry wetlands, a hopper with water-powered auger was installed to deliver pelletized lime or limestone as needed. The main objective for these wetlands is to reduce the downstream transport of metals, with a secondary objective of providing additional alkalinity.

For additional information, contact Charles Cravotta at the U.S. Geological Survey, 215 Limekiln Road, New Cumberland, PA 17070; 717-730-6963 (email: cravotta@usgs.gov).

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
 SWATARA CREEK PROJECT--Continued

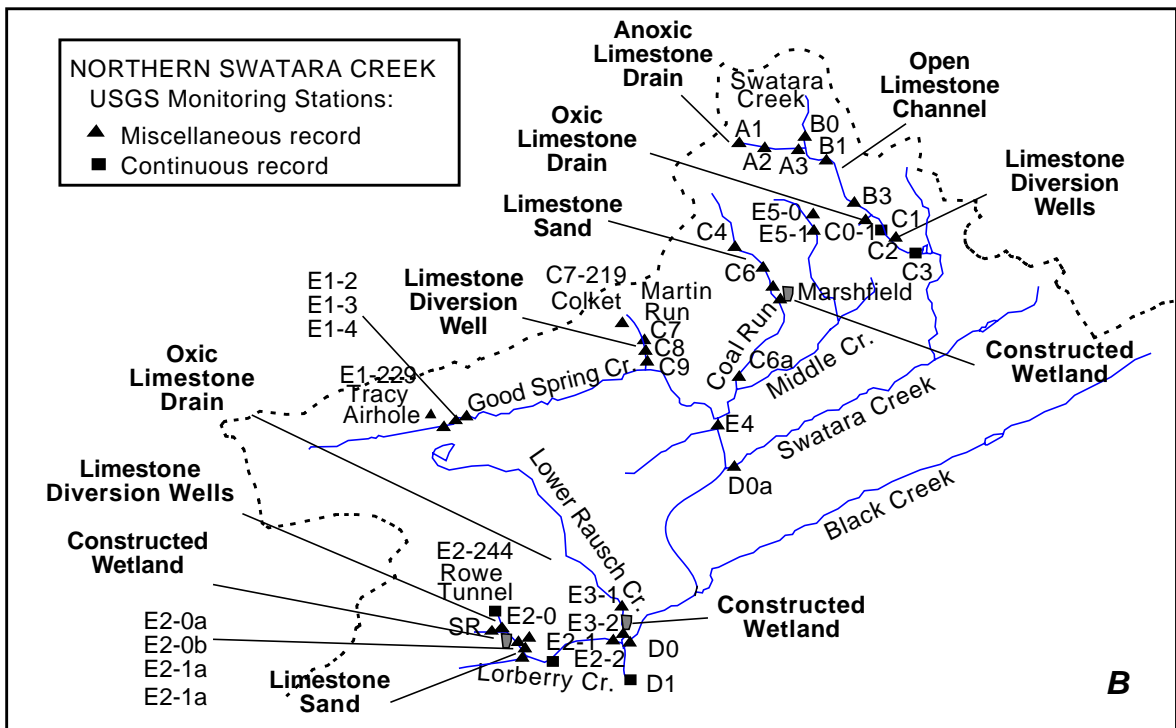
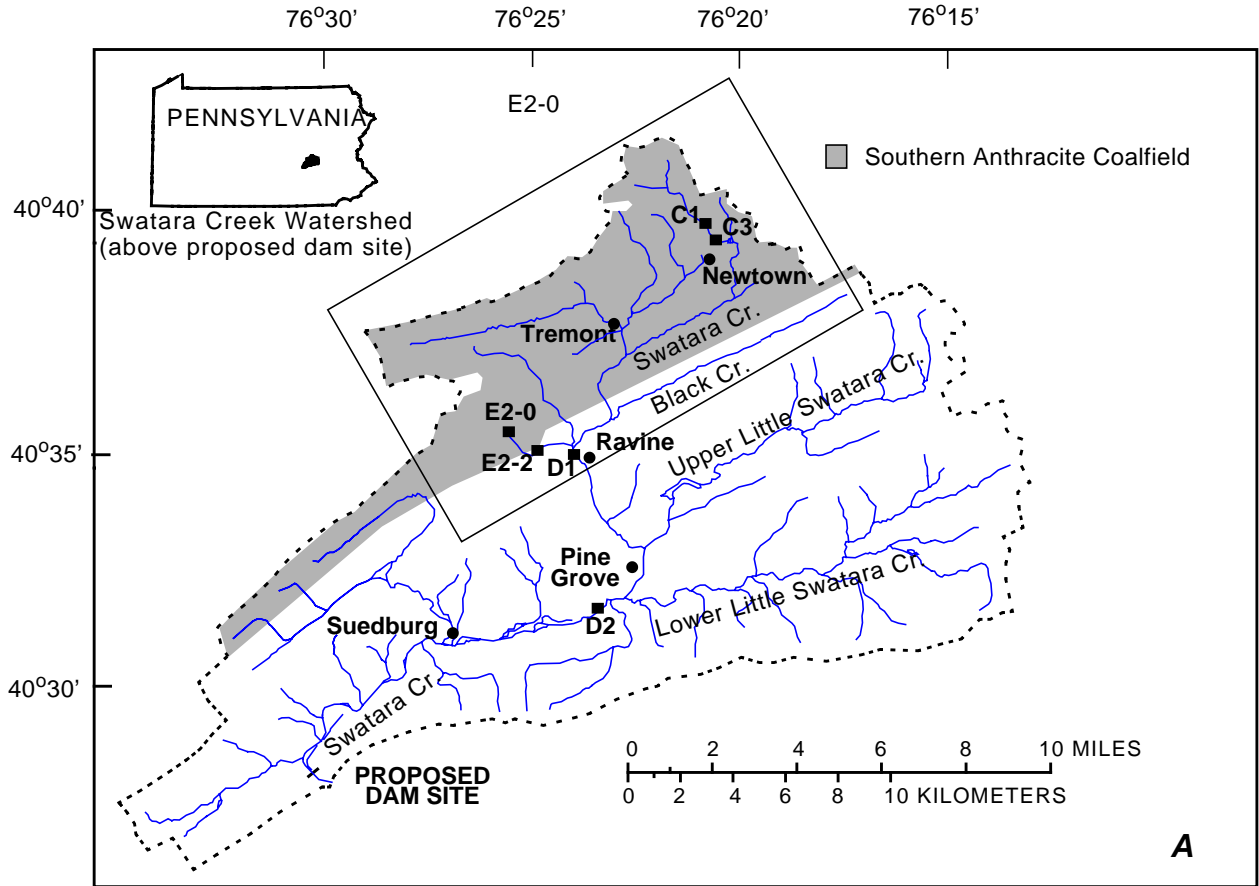


Figure 9.--Locations of water-quality and streamflow monitoring stations in the Swatara Creek Basin, Lebanon and Schuylkill Counties, Pennsylvania: A, continuous monitoring stations on Swatara Creek above the proposed dam for Swatara State Park Reservoir; B, monitoring stations within the Southern Anthracite Coalfield, above Ravine (area denoted in A).

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

TABLE 4.--Swatara Creek project station list.

REMARKS.--All samples collected by the U.S. Geological Survey. Abbreviations used in the following table include: AB-above; BL-below; NR-near; DS-downstream, US-upstream, ALD-anoxic limestone drain; OLD-oxic limestone drain; OLC-open limestone channel; LS-limestone sand; LDW-limestone diversion well; n.a.-not applicable.

LOCAL ID	STATION NUMBER	STATION NAME	LATITUDE	LONGITUDE	DRAINAGE AREA
CONTINUOUS-RECORD STATIONS					
C1	0157155010	SWATARA CREEK, SITE C1, 350 FT AB LDW, AB SR209 BRIDGE AT NEWTOWN, PA	40°39'34"	76°20'50"	2.58
C3	0157155014	SWATARA CREEK, SITE C3, 350 FT BL LDW, BL SR209 BRIDGE AT NEWTOWN, PA	40°39'28"	76°20'43"	2.92
E2-244	403542076263201	ROWE DRAINAGE TUNNEL, SITE E2-244, NEAR JOLIETT	40°35'42"	76°26'32"	n.a.
E2-1	01571778	LORBERRY CREEK ABOVE TR625 BRIDGE NEAR LORBERRY JUNCTION, PA	40°35'15"	76°25'35"	3.59
D1	01571820	SWATARA CREEK BL SR125 BRIDGE AT RAVINE, PA	40°34'50"	76°24'18"	43.3
D2	01572025	SWATARA CREEK NEAR PINE GROVE, PA	40°31'57"	76°24'09"	116
MISCELLANEOUS-RECORD STATIONS					
A1-199	404032076222901	WM CARL BUCK MTN MINE, SITE A1-199, NEAR NEWTOWN	40°40'32"	76°22'29"	n.a.
A2	0157154970	NORTHWEST TRIBUTARY TO SWATARA CREEK, SITE A2, AT ALD OUTFLOW, NEAR NEWTOWN, PA	40°40'32"	76°22'25"	.25
A3	0157154972	NORTHWEST TRIBUTARY TO SWATARA CREEK, SITE A3, 1500 FT BELOW ALD, NEAR NEWTOWN, PA	40°40'32"	76°21'59"	.40
B0	0157154960	SWATARA CREEK, ABOVE NORTHWEST TRIBUTARY, SITE B0, NEAR NEWTOWN, PA	40°40'34"	76°21'57"	1.14
B3	0157154984	SWATARA CREEK, BELOW NORTHWEST TRIBUTARY, SITE B3, 400 FT BELOW OLC, NEAR NEWTOWN, PA	40°40'22"	76°21'36"	1.90
C0-1	403955076211801	HEGINS MINE DISCHARGE, SITE C0-1, AT NEWTOWN, PA	40°39'55"	76°21'18"	n.a.
	403955076211802	HEGINS MINE DISCHARGE, TREATED, AT NEWTOWN, PA	40°39'55"	76°21'18"	n.a.
C2	0157155012	SWATARA CREEK, SITE C2, AT LDW OUTFLOW, AT NEWTOWN, PA	40°39'31"	76°20'47"	2.65
E5-1	0157157010	MIDDLE CREEK, SITE E5-1, 600 FT BELOW DISCHARGE, AT TR571, NEAR NEWTOWN, PA	40°38'48"	76°22'18"	1.63
C6	0157158014	COAL RUN, SITE C6, NEAR TREMONT, PA	40°38'32"	76°22'46"	.29
C6a	01571585	COAL RUN BELOW WETLAND AT TREMONT, PA	40°38'00"	76°22'58"	1.26
C7-219	403825076242301	COLKET MINE TUNNEL, SITE C7-219, AT DONALDSON, PA	40°38'25"	76°24'23"	n.a.
C7	0157156010	MARTIN RUN, SITE C7, 100 FT ABOVE LDW, AT DONALDSON, PA	40°38'19"	76°24'19"	.48
C8	0157156012	MARTIN RUN, SITE C8, AT LDW OUTFLOW, AT DONALDSON, PA	40°38'17"	76°24'19"	.51
C9	0157156014	MARTIN RUN, SITE C9, 50 FT BELOW LDW, AT DONALDSON, PA	40°38'16"	76°24'19"	.53
E1-2	0157156212	TRACY AIRHOLE, SITE E1-2, NEAR DONALDSON, PA	40°37'41"	76°27'08"	.20
E1-229	403745076271901	TRACY AIRHOLE, SITE E1-229, NEAR DONALDSON, PA	40°37'45"	76°27'19"	n.a.
E1-3	0157156520	GOOD SPRING CREEK AB TRACY TRIB NEAR DONALDSON, PA	40°37'40"	76°27'09"	.23
E1-4	0157156521	GOOD SPRING CREEK BL TRACY TRIB NEAR DONALDSON, PA	40°37'39"	76°27'05"	2.59
D0a	01571552	SWATARA CREEK AT TREMONT, PA	40°37'08"	76°23'09"	9.81
E4	01571593	GOOD SPRING CREEK BL MIDDLE CREEK AT TREMONT, PA	40°37'35"	76°23'15"	14.0
E3-S0	403626076253001	ORCHARD MINE, SITE E3-S0, NEAR JOLIETT, PA	40°36'26"	76°25'30"	n.a.
E3-1	01571758	LOWER RAUSCH CREEK, SITE E3-1 ABOVE WETLAND, NEAR LORBERRY JUNCTION, PA	40°35'34"	76°24'40"	4.65
E3-2	01571760	LOWER RAUSCH CREEK, SITE E3-2 BELOW WETLAND, AT LORBERRY JUNCTION, PA	40°35'22"	76°24'42"	4.65
E2-0b	01571773	LORBERRY CREEK DIV WELLS OUTFLOW NR LORBERRY, PA	40°35'36"	76°26'25"	1.01
E2-0	01571774	LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA	40°35'32"	76°26'22"	1.15
SR	01571776	STUMPS RUN AT LORBERRY, PA	40°35'30"	76°26'23"	.65
	0157177610	LORBERRY CREEK WETLANDS INFLOW AT LORBERRY, PA	40°35'29"	76°26'23"	
	0157177612	LORBERRY CR WETLANDS CELL 1 OUTFLOW AT LORBERRY	40°35'27"	76°26'25"	
	0157177614	LORBERRY CR WETLANDS CELL 2 OUTFLOW AT LORBERRY	40°35'28"	76°26'20"	
	0157177616	LORBERRY CR WETLANDS CELL 3 OUTFLOW AT LORBERRY	40°35'26"	76°26'24"	
	0157177618	LORBERRY CR WETLANDS CELL 4 OUTFLOW AT LORBERRY	40°35'27"	76°26'19"	
	403524076262301	PIPED DISCHARGE NEAR CELL 4, PA	40°35'24"	76°26'23"	
	403530076262601	PIPED DISCHARGE NEAR CELL 1, PA	40°35'30"	76°26'26"	
	0157177620	LORBERRY CREEK BELOW WETLANDS AT LORBERRY, PA	40°35'27"	76°26'17"	1.80
SH	403521076260601	SHADLE MINE SHAFT AT LORBERRY, PA	40°35'21"	76°26'06"	n.a.
	01571777	LORBERRY CREEK ABOVE PANTHER HEAD DISCHARGE NEAR LORBERRY JUNCTION, PA	40°35'11"	76°25'55"	2.11
	0157177780	PANTHER HEAD, 500 FT BELOW DISCHARGE TO LORBERRY CREEK NEAR LORBERRY JUNCTION, PA	40°35'10"	76°25'56"	.01
	0157177790	UNNAMED TRIBUTARY TO LORBERRY CREEK NEAR LORBERRY JUNCTION, PA	40°35'07"	76°25'48"	1.14
E2-2	01571780	LORBERRY CREEK ABOVE LOWER RAUSCH CREEK AT LORBERRY JUNCTION, PA	40°35'20"	76°24'43"	4.17
D0	4036360876253026	LIMESTONE DRAIN 2, EFFLUENT (80 FT)	40°36'26"	76°25'30"	n.a.
	01571798	SWATARA CREEK BELOW TR412 BRIDGE AT LORBERRY JUNCTION, PA	40°35'18"	76°24'37"	42.3

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

404032076222901 -- WM Carl Buck Mtn Mine, Site A1-199, nr Newtown, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, SATURATION (%) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 13...	1030	1028	930	.01	360	.5	4	5.0	5.0	253
NOV 29...	1200	1028	9813	.49	410	2.0	19	5.0	4.9	252
DEC 03...	1030	1028	930	--	--	--	--	--	5.2	--
DEC 10...	0930	1028	9813	.01	410	.4	3	4.7	3.3	327
JAN 30...	1215	1028	9813	.02	410	3.0	27	5.0	5.0	306
MAR 26...	1345	1028	9813	.02	440	3.1	27	5.1	4.9	313
MAY 28...	1445	1028	9813	.02	420	3.5	32	4.9	4.8	302
JUL 30...	1330	1028	9813	.01	240	2.0	19	5.0	4.9	273

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM DISSOLVED (MG/L AS K) (00935)	POTASSIUM TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM DISSOLVED (MG/L AS NA) (00930)	SODIUM TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED AS CAC03 (70508)
NOV 13...	11.0	5.0	4.8	8.2	7.8	1.8	1.8	16	16	17
NOV 29...	11.0	6.4	6.2	9.9	9.8	--	--	15	15	63
DEC 03...	--	5.3	5.1	8.3	7.9	1.7	1.7	16	16	15
DEC 10...	11.0	8.3	8.5	13	13	--	--	18	18	72
JAN 30...	10.5	6.7	6.7	10	11	--	--	15	15	65
MAR 26...	9.40	6.7	6.8	13	13	--	--	16	16	70
MAY 28...	10.5	5.4	5.3	11	11	--	--	16	15	120
JUL 30...	11.0	5.9	5.7	9.8	9.7	--	--	16	16	61

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DISSOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DISSOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)
NOV 13...	--	--	79	--	250	250	<40	<40	42	42
NOV 29...	4.0	19	89	<2.0	590	600	--	--	--	--
DEC 03...	--	--	80	--	200	230	<40	<40	41	41
DEC 10...	.00	18	120	<2.0	1200	1200	--	--	--	--
JAN 30...	5.0	17	110	<2.0	850	900	--	--	--	--
MAR 26...	3.0	18	120	2.0	830	800	--	--	--	--
MAY 28...	2.0	19	120	<2.0	820	900	--	--	--	--
JUL 30...	5.0	18	87	2.0	520	500	--	--	--	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

404032076222901 -- WM Carl Buck Mtn Mine, Site A1-199, nr Newtown, PA--Continued

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

Date	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL, RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL, RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL, RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL, RECOV- ERABLE (µG/L AS FE) (01045)
	NOV 13...	<3.0	<3.0	<3.0	<3.0	81	77	<3.0	<3.0	16000
29...	--	--	--	--	--	--	--	--	18000	18000
DEC 03...	<3.0	<3.0	<3.0	<3.0	81	78	<3.0	<3.0	15000	15000
10...	--	--	--	--	--	--	--	--	24000	24000
JAN 30...	--	--	--	--	--	--	--	--	21000	21000
MAR 26...	--	--	--	--	--	--	--	--	24000	25000
MAY 28...	--	--	--	--	--	--	--	--	22000	21000
JUL 30...	--	--	--	--	--	--	--	--	17000	17000

Date	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL, RECOV- ERABLE (µG/L AS PB) (01051)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL, RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL, RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL, SOLVED (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL, RECOV- ERABLE (µG/L AS ZN) (01092)
	NOV 13...	<40	<40	1400	1400	83	78	<100	<100	170
29...	--	--	1700	1700	--	--	--	--	--	--
DEC 03...	<40	<40	1500	1400	82	83	<100	<100	220	160
10...	--	--	2300	2300	--	--	--	--	--	--
JAN 30...	--	--	1900	2000	--	--	--	--	--	--
MAR 26...	--	--	2200	2200	--	--	--	--	--	--
MAY 28...	--	--	1900	1900	--	--	--	--	--	--
JUL 30...	--	--	1700	1700	--	--	--	--	--	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157154970 -- NW Trib to Swatara Cr, Site A2, near Newtown, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 13...	1015	1028	930	.01	230	.4	4	6.5	6.7	382
NOV 29...	1145	1028	9813	.36	290	1.1	10	5.9	6.3	329
DEC 10...	0915	1028	9813	.03	210	.2	2	6.4	6.6	420
JAN 30...	1200	1028	9813	.06	290	3.1	28	6.5	6.6	417
MAR 26...	1330	1028	9813	.66	380	3.9	34	6.3	6.3	358
MAY 28...	1430	1028	9813	.66	310	3.9	35	6.2	6.2	333
JUL 30...	1315	1028	9813	.27	160	2.3	20	6.4	6.5	376

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED AS CAC03 (70508)
NOV 13...	12.0	45	43	7.9	7.4	2.2	2.1	17	17	17
NOV 29...	12.0	36	41	9.1	8.9	--	--	17	17	.00
DEC 10...	12.0	50	50	11	11	--	--	18	18	.00
JAN 30...	11.0	45	43	10	10	--	--	16	15	.00
MAR 26...	9.80	32	33	10	11	--	--	16	16	15
MAY 28...	10.0	26	26	9.3	9.4	--	--	16	16	42
JUL 30...	11.5	45	46	8.0	8.3	--	--	17	17	.00

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE, DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC, DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC, TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)
NOV 13...	84	--	70	--	<20	30	<40	<40	60	61
NOV 29...	80	20	76	<2.0	<200	<200	--	--	--	--
DEC 10...	80	18	82	10	<200	<200	--	--	--	--
JAN 30...	86	16	94	<2.0	<200	<200	--	--	--	--
MAR 26...	52	18	92	14	<200	<200	--	--	--	--
MAY 28...	42	21	85	<2.0	<200	3800	--	--	--	--
JUL 30...	88	21	71	6.0	<200	<200	--	--	--	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157154970 -- NW Trib to Swatara Cr, Site A2, near Newtown, PA--Continued

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

Date	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)
NOV 13...	<3.0	<3.0	<3.0	<3.0	61	59	<3.0	<3.0	7800	7600
29...	--	--	--	--	--	--	--	--	8500	7100
DEC 10...	--	--	--	--	--	--	--	--	9900	10000
JAN 30...	--	--	--	--	--	--	--	--	11000	11000
MAR 26...	--	--	--	--	--	--	--	--	13000	13000
MAY 28...	--	--	--	--	--	--	--	--	10000	11000
JUL 30...	--	--	--	--	--	--	--	--	10000	11000

Date	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 13...	<40	<40	1400	1400	53	51	<100	<100	100	96
29...	--	--	1700	1700	--	--	--	--	--	--
DEC 10...	--	--	2000	2000	--	--	--	--	--	--
JAN 30...	--	--	1900	1900	--	--	--	--	--	--
MAR 26...	--	--	1900	2000	--	--	--	--	--	--
MAY 28...	--	--	1700	1700	--	--	--	--	--	--
JUL 30...	--	--	1500	1500	--	--	--	--	--	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157154972 -- NW Trib to Swatara Cr, Site A3, near Newtown, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µ) (00095)
NOV 29...	1130	1028	9813	.44	300	11	96	5.7	6.6	235
JAN 30...	1130	1028	9813	.41	370	11	95	6.4	6.6	288
MAR 26...	1315	1028	9813	1.5	360	12	94	6.4	6.3	295
MAY 28...	1400	1028	9813	.92	200	10	98	6.5	6.1	287
JUL 30...	1215	1028	9813	.22	140	8.9	92	6.4	6.4	280

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV 29...	9.90	22	22	7.5	7.3	14	14	.00	20	17
JAN 30...	8.90	23	25	7.7	8.7	13	13	.00	20	15
MAR 26...	6.60	25	26	9.0	9.1	15	15	30	22	17
MAY 28...	13.0	20	21	8.9	8.8	15	15	91	15	20
JUL 30...	17.0	22	24	8.4	8.6	15	16	30	19	19

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)
NOV 29...	68	<2.0	<200	<200	1200	2900	1100	1100
JAN 30...	81	6.0	<200	500	2200	4900	1200	1300
MAR 26...	84	16	<200	400	5200	7800	1500	1500
MAY 28...	83	8.0	<200	200	4200	6200	1400	1400
JUL 30...	80	6.0	<200	<200	350	2500	970	1000

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157154960 -- Swatara Creek, ab NW Trib, Site B0, nr Newtown, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED- UCTION POTENTIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 29...	1115	1028	9813	1.6	520	11	96	4.0	4.2	92.0
JAN 30...	1115	1028	9813	1.1	520	12	96	4.2	4.4	93.0
MAR 26...	1300	1028	9813	2.0	540	12	95	4.4	4.4	88.0
MAY 28...	1345	1028	9813	2.3	580	10	97	4.2	4.4	81.0
JUL 30...	1200	1028	9813	.18	210	8.8	96	4.2	4.3	91.0

Date	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
NOV 29...	9.10	1.2	1.2	1.1	1.1	8.9	9.1	49	.00	15
JAN 30...	6.20	1.2	1.1	1.2	1.1	8.2	8.1	37	.00	14
MAR 26...	4.20	1.3	1.3	1.2	1.1	7.4	7.2	35	.00	12
MAY 28...	13.5	1.0	1.0	1.0	1.0	5.5	5.4	67	.00	9.0
JUL 30...	20.5	1.2	1.1	1.4	1.3	6.5	6.5	41	.00	12

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)
NOV 29...	11	<2.0	800	900	220	280	240	240
JAN 30...	15	<2.0	880	900	160	160	200	200
MAR 26...	15	2.0	990	900	160	460	200	200
MAY 28...	15	<2.0	790	800	100	160	160	160
JUL 30...	13	2.0	520	500	170	290	290	280

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157154984 -- Swatara Cr, bl NW Trib, Site B3, near Newtown, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED- UCTION POTENTIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 29...	1045	1028	9813	2.0	490	11	94	4.8	5.1	107
JAN 30...	1100	1028	9813	1.5	450	12	96	5.5	5.2	119
MAR 26...	1215	1028	9813	3.5	460	12	95	6.0	5.7	123
MAY 28...	1330	1028	9813	3.2	340	10	99	6.0	5.7	133
JUL 30...	1130	1028	9813	.40	310	9.0	99	6.3	6.2	186

Date	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
NOV 29...	9.20	5.8	5.9	2.7	2.5	10	10	52	1.0	16
JAN 30...	6.70	6.3	6.5	3.0	2.9	8.9	8.4	47	3.0	15
MAR 26...	4.60	7.1	7.2	3.2	3.1	8.9	9.1	34	3.0	13
MAY 28...	14.0	6.4	6.6	3.4	3.4	8.0	8.3	63	4.0	13
JUL 30...	20.5	15	16	5.7	6.1	12	13	30	8.0	17

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)
NOV 29...	22	10	290	600	280	770	440	430
JAN 30...	26	<2.0	<200	800	510	1200	460	460
MAR 26...	31	4.0	<200	800	1300	1900	530	530
MAY 28...	38	2.0	<200	600	1200	2000	530	530
JUL 30...	57	6.0	<200	<200	50	760	590	640

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

403955076211801 -- Hegin's Mine Discharge Site C0-1, at Newtown, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 29...	1015	1028	9813	.05	720	10	94	3.3	3.5	517
JAN 14...	0930	1028	9813	.04	520	9.4	82	3.5	3.5	600
JAN 30...	1030	1028	9813	.02	550	11	92	3.5	3.6	583
MAR 04...	1315	1028	9813	.13	560	9.3	82	3.5	--	524
MAR 26...	1130	1028	9813	.44	550	11	91	3.7	3.7	438
MAY 28...	1300	1028	9813	.23	630	10	96	3.5	3.7	375
JUL 30...	1100	1028	9813	.07	310	10	94	3.4	3.5	548

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV 29...	9.60	11	11	41	41	5.7	5.7	100	.00	4.0
JAN 14...	9.50	12	11	49	50	4.8	4.7	110	.00	3.8
JAN 30...	9.30	10	11	43	45	4.8	4.8	95	.00	4.1
MAR 04...	9.55	11	10	45	45	5.7	5.6	--	.00	--
MAR 26...	6.70	8.6	8.5	30	28	4.5	4.4	79	.00	4.3
MAY 28...	11.5	6.3	6.9	24	24	4.0	4.3	110	.00	3.9
JUL 30...	11.0	10	10	35	38	7.4	7.7	93	.00	5.1

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)
NOV 29...	240	<2.0	6400	6400	190	180	2400	2400
JAN 14...	290	<2.0	6400	6300	240	400	2500	2400
JAN 30...	260	<2.0	6000	5900	170	170	2300	2300
MAR 04...	--	--	6100	6000	280	300	2100	2100
MAR 26...	190	4.0	4500	4400	110	110	1600	1600
MAY 28...	160	<2.0	3300	3500	80	90	1100	1200
JUL 30...	230	2.0	5800	6000	170	180	1800	1900

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

403955076211802 -- Hegins Mine Discharge, Treated, at Newtown, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED- UCTION POTENTIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD) (00400)	PH WATER WHOLE LAB (STAND- ARD) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 29...	1000	1028	9813	.05	560	11	92	4.7	4.6	431
JAN 14...	0915	1028	9813	.04	490	11	94	4.6	4.5	501
JAN 30...	1015	1028	9813	.06	500	11	93	4.6	4.5	501
MAR 04...	1300	1028	9813	.13	490	11	95	4.4	--	436
MAR 26...	1115	1028	9813	.39	510	11	94	4.4	4.3	470
MAY 28...	1245	1028	9813	.23	590	11	100	4.2	4.3	422
JUL 30...	1045	1028	9813	.07	360	10	76	4.6	4.5	460

Date	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
NOV 29...	9.50	20	20	40	41	5.7	5.7	71	.00	4.1
JAN 14...	8.10	20	21	49	50	4.8	4.8	71	.00	3.8
JAN 30...	9.10	16	18	41	45	4.6	5.0	73	.00	4.0
MAR 04...	7.90	19	20	45	46	5.6	5.6	--	.00	--
MAR 26...	9.50	17	17	39	39	6.3	6.2	89	.00	6.2
MAY 28...	10.5	14	14	35	35	6.0	6.0	98	.00	6.3
JUL 30...	12.5	18	19	36	37	7.3	7.6	53	.00	5.2

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)
NOV 29...	240	<2.0	4900	5100	70	80	2100	2100
JAN 14...	270	<2.0	5900	5900	110	90	2300	2300
JAN 30...	260	<2.0	5200	5700	90	100	2000	2200
MAR 04...	--	--	5700	5700	110	120	2000	2000
MAR 26...	250	8.0	6000	6100	340	240	1800	1800
MAY 28...	220	2.0	4400	4400	120	120	1300	1300
JUL 30...	230	2.0	4700	5000	60	70	1700	1800

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157155012 -- Swatara Creek, Site C2, at Newtown, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED- UCTION POTENTIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 29...	0930	1028	9813	.06	400	10	93	5.8	5.5	134
JAN 30...	0945	1028	9813	1.6	350	12	96	7.3	7.0	146
MAR 26...	1030	1028	9813	1.7	450	12	95	5.8	6.0	164
MAY 28...	1215	1028	9813	.39	430	10	99	5.4	4.4	165
JUL 30...	1000	1028	9813	.43	390	8.4	92	5.6	5.5	260

Date	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
NOV 29...	9.30	8.2	8.1	4.4	4.5	9.5	9.4	47	2.0	14
JAN 30...	6.70	9.3	14	5.0	5.4	7.3	7.8	.00	12	11
MAR 26...	4.70	9.9	12	7.2	7.1	7.3	7.2	37	6.0	9.8
MAY 28...	14.0	8.8	9.2	7.2	7.2	7.0	7.0	68	.00	9.8
JUL 30...	19.5	17	18	13	13	9.3	9.7	34	2.0	12

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)
NOV 29...	34	<2.0	<200	400	150	340	390	380
JAN 30...	40	2.0	<200	800	140	890	380	420
MAR 26...	52	10	370	1200	590	970	580	570
MAY 28...	55	4.0	380	900	620	1100	540	540
JUL 30...	91	12	<200	500	190	410	580	600

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157157010 -- Middle Creek, Site E5-1, near Newtown, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD-ARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD ARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 29...	1400	1028	9813	.70	480	9.1	83	5.2	4.9	225
JAN 30...	1400	1028	9813	1.4	440	10	86	5.3	5.2	222
MAR 27...	1045	1028	9813	9.0	460	11	88	5.2	5.1	179

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV 29...	11.0	12	12	14	14	11	11	50	2.0	17
JAN 30...	7.80	9.1	8.8	11	10	12	12	40	3.0	19
MAR 27...	7.10	8.1	8.1	8.5	8.5	11	11	58	3.0	16

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)
NOV 29...	79	<2.0	540	500	1100	1800	1000	1100
JAN 30...	64	<2.0	470	700	2100	2900	780	760
MAR 27...	55	32	390	1300	790	4800	600	610

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157158014 -- Coal Run, Site C6, near Tremont, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (MG/L) (00301)	PH WATER WHOLE FIELD (STANDARD) (00400)	PH WATER WHOLE LAB (STANDARD) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 29...	1345	1028	9813	2.1	240	11	99	6.3	6.5	251
JAN 30...	1345	1028	9813	2.3	350	11	96	6.8	6.4	230
MAR 27...	0945	1028	9813	5.9	410	12	99	6.2	5.8	157

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV 29...	10.5	18	19	15	16	7.5	8.0	.00	18	13
JAN 30...	9.60	15	15	12	12	7.0	7.1	30	22	11
MAR 27...	7.20	9.0	9.2	7.5	7.7	5.8	5.9	50	4.0	8.5

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)
NOV 29...	87	<2.0	<200	<200	2300	2600	1200	1300
JAN 30...	68	<2.0	<200	<200	1700	2000	990	1000
MAR 27...	48	18	<200	500	480	1300	660	700

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571585 -- Coal Run below Wetland at Tremont, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD-ARD (00400)	PH WATER WHOLE LAB-ARD (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 29...	1315	1028	9813	2.5	310	11	95	5.9	6.5	259
JAN 30...	1330	1028	9813	2.4	410	11	98	6.6	6.4	269
MAR 27...	0930	1028	9813	6.5	390	12	97	6.6	6.1	191

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB CAC03 (00417)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV 29...	10.5	20	20	15	16	7.1	7.4	.00	22	12
JAN 30...	8.00	17	18	13	13	6.6	6.4	26	18	10
MAR 27...	6.70	10	10	7.8	7.9	5.6	5.7	42	9.0	7.8

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)
NOV 29...	88	2.0	<200	<200	1500	1800	1200	1200
JAN 30...	70	<2.0	<200	<200	1000	1200	930	920
MAR 27...	53	14	<200	400	400	1200	660	700

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

403825076242301 -- Colket Mine Tunnel, Site C7-219, at Donaldson, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 29...	1515	1028	9813	.23	280	6.6	61	5.8	6.0	384
JAN 30...	1500	1028	9813	.05	320	11	97	6.6	6.1	232
MAR 27...	1215	1028	9813	.34	420	7.0	63	5.8	6.0	417

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANION WATER UNFILTERED (MG/L AS CAC03) (00417)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV 29...	11.5	30	32	24	25	2.8	2.8	48	42	3.3
JAN 30...	10.0	30	29	23	23	3.1	3.1	52	46	3.6
MAR 27...	11.5	32	32	24	24	3.1	3.0	54	32	3.9

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)
NOV 29...	160	<2.0	<200	<200	25000	26000	1500	1500
JAN 30...	170	<2.0	<200	<200	24000	24000	1500	1500
MAR 27...	160	10	260	500	21000	22000	1700	1600

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157156010 -- Martin Run, Site C7, at Donaldson, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED- UCTION POTENTIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (MG/L) (00301)	PH WATER WHOLE FIELD- ARD (00400)	PH WATER WHOLE LAB (STAND- ARD (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 29...	1500	1028	9813	.50	260	11	96	6.1	6.2	262
JAN 30...	1445	1028	9813	.93	350	10	92	6.4	6.0	232
MAR 27...	1200	1028	9813	3.6	440	12	99	5.9	5.4	163

Date	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
NOV 29...	11.0	18	17	14	14	11	10	41	10	18
JAN 30...	9.90	13	13	9.7	9.7	11	11	30	8.0	17
MAR 27...	7.80	6.7	6.5	5.1	5.0	13	13	43	3.0	21

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)
NOV 29...	89	<2.0	<200	<200	7000	7500	1100	1100
JAN 30...	65	<2.0	<200	200	3300	3700	690	680
MAR 27...	35	10	<200	400	2000	2900	540	540

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157156012 -- Martin Run, Site C8, at Donaldson, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD-ARD (00400)	PH WATER WHOLE LAB (STANDARD-ARD) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 29...	1445	1028	9813	--	260	11	96	5.9	6.2	260
JAN 30...	1430	1028	9813	.60	320	11	97	6.6	6.2	232
MAR 27...	1145	1028	9813	.31	440	12	99	6.0	5.7	163

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANION WATER UNFILTERED FET LAB (MG/L AS CAC03) (00417)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV 29...	11.0	18	18	15	15	11	11	41	10	19
JAN 30...	10.0	12	18	9.4	9.5	11	11	32	12	17
MAR 27...	7.70	6.9	7.4	5.0	5.0	13	13	37	4.0	21

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)
NOV 29...	90	<2.0	<200	200	7700	7900	1100	1100
JAN 30...	65	4.0	<200	300	5000	5600	820	810
MAR 27...	35	18	<200	400	1900	3000	530	530

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157156014 -- Martin Run, Site C9, at Donaldson, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED- UCTION POTENTIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (MG/L) (00301)	PH WATER WHOLE FIELD- ARD (00400)	PH WATER WHOLE LAB (STAND- ARD) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 29...	1430	1028	9813	.50	260	11	96	6.1	6.2	262
JAN 30...	1415	1028	9813	.93	380	11	95	6.4	6.3	235
MAR 27...	1115	1028	9813	3.9	430	12	98	6.0	5.5	163

Date	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
NOV 29...	11.0	18	18	14	14	10	10	35	10	8.3
JAN 30...	10.0	13	16	9.7	9.4	11	11	30	13	18
MAR 27...	7.60	6.9	7.1	5.2	5.2	13	13	37	3.0	20

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)
NOV 29...	88	<2.0	<200	<200	6800	7100	1100	1100
JAN 30...	65	2.0	<200	200	4500	5400	820	800
MAR 27...	36	16	<200	400	1900	2800	540	550

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

403745076271901 -- Tracy Airhole, Site E1-229, near Donaldson, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED- UCTION POTENTIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD- ARD (00400)	PH WATER WHOLE LAB (STAND- ARD (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 29...	1530	1028	9813	1.2	260	.9	8	5.8	6.1	574
JAN 30...	1515	1028	9813	1.8	330	1.9	17	6.0	6.0	562
MAR 27...	1230	1028	9813	4.5	390	1.3	12	6.0	6.1	452

Date	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
NOV 29...	11.0	43	43	43	46	6.5	6.9	17	74	11
JAN 30...	11.0	39	39	39	39	6.7	6.5	6.2	58	11
MAR 27...	11.0	31	31	30	30	8.4	8.2	10	46	15

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)
NOV 29...	240	4.0	<200	<200	24000	24000	3000	3100
JAN 30...	210	4.0	<200	<200	20000	20000	2700	2600
MAR 27...	140	12	<200	<200	11000	14000	2100	2100

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157156212 -- Tracy Airhole, Site E1-2, near Donaldson, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, PERCENT SATURATION (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 29...	1600	1028	9813	1.2	230	9.5	87	6.2	6.4	542
JAN 30...	1545	1028	9813	1.8	270	9.1	83	6.6	6.4	542
MAR 27...	1315	1028	9813	4.5	370	8.2	74	6.4	6.3	438

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV 29...	11.0	42	43	43	44	7.3	7.3	13	54	12
JAN 30...	11.0	36	37	36	37	6.7	6.7	4.0	50	11
MAR 27...	10.5	31	30	29	28	8.4	8.7	12	44	15

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)
NOV 29...	230	16	<200	<200	18000	19000	2900	2900
JAN 30...	200	10	<200	<200	15000	17000	2500	2600
MAR 27...	140	38	<200	<200	9100	17000	2000	2100

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157156520 -- Good Spring Cr ab Tracy Trib nr Donaldson, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED- UCTION POTENTIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (MG/L) (00301)	PH WATER WHOLE FIELD- ARD (00400)	PH WATER WHOLE LAB (STAND- ARD (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 29...	1615	1028	9813	1.8	340	9.8	88	6.3	6.4	145
JAN 30...	1600	1028	9813	1.3	330	11	88	6.8	6.3	171
MAR 27...	1330	1028	9813	2.5	390	12	92	6.7	6.4	207

Date	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
NOV 29...	9.80	12	12	5.4	5.3	6.9	6.8	15	12	11
JAN 30...	6.50	13	13	5.7	5.7	7.2	7.3	12	12	3.1
MAR 27...	5.10	17	18	5.8	5.7	10	10	13	15	18

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)
NOV 29...	37	<2.0	<200	<200	180	200	140	130
JAN 30...	39	<2.0	<200	<200	150	140	100	90
MAR 27...	46	<2.0	<200	300	120	260	220	230

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157156521 -- Good Spring Cr bl Tracy Trib nr Donaldson, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (MG/L) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 29...	1545	1028	9813	3.1	240	10	90	6.2	6.4	338
JAN 30...	1530	1028	9813	3.0	310	10	89	6.6	6.4	347
MAR 27...	1300	1028	9813	6.4	390	11	89	6.5	6.3	310

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANION WATER UNFILTERED FET LAB (MG/L AS CAC03) (00417)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV 29...	10.5	26	26	23	23	6.9	7.0	23	30	11
JAN 30...	8.60	23	23	20	20	6.9	6.8	24	34	1.8
MAR 27...	7.50	23	23	16	16	9.6	9.4	25	26	17

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)
NOV 29...	130	<2.0	<200	<200	7600	7900	1400	1400
JAN 30...	110	<2.0	<200	<200	6600	6900	1200	1200
MAR 27...	87	24	<200	<200	3900	6300	1000	1000

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571593 -- Good Spring Creek bl Middle Creek at Tremont, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, SATURATION (PERCENT) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
OCT 01...	1545	1028	--	10	--	--	--	7.1	--	325
NOV 29...	1230	1028	9813	8.8	340	11	97	5.8	6.5	262
JAN 30...	1245	1028	9813	14	420	12	98	6.3	6.2	258
MAR 27...	0845	1028	9813	12	410	12	99	6.4	6.2	186
MAY 28...	1100	1028	9813	26	270	10	100	6.8	6.1	270
JUL 30...	0930	1028	9813	4.3	350	8.8	96	6.8	7.0	390

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
OCT 01...	13.0	--	--	--	--	--	--	--	--	--
NOV 29...	10.5	20	20	15	15	9.9	9.6	.00	10	14
JAN 30...	8.20	17	17	12	13	11	11	38	10	17
MAR 27...	5.70	12	12	7.2	7.4	9.5	9.6	42	8.0	15
MAY 28...	13.5	19	19	17	18	7.9	7.7	52	11	12
JUL 30...	19.5	30	31	24	24	8.6	8.5	.00	14	12

Date	SULFATE DISSOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	IRON, DISSOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	MANGANESE, DISSOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)
OCT 01...	--	--	--	--	--	--	--	--
NOV 29...	94	<2.0	<200	<200	480	520	930	950
JAN 30...	76	18	<200	<200	640	940	760	740
MAR 27...	47	20	<200	600	460	1600	580	620
MAY 28...	96	2.0	<200	400	540	1500	800	830
JUL 30...	150	4.0	<200	<200	30	160	700	700

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571552 -- Swatara Creek at Tremont, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 29...	0745	1028	9813	6.1	400	11	100	5.5	6.3	174
JAN 30...	0845	1028	9813	12	410	12	97	6.6	6.3	167
MAR 26...	0945	1028	9813	18	440	12	96	6.8	6.1	144
MAY 28...	0930	1028	9813	11	350	9.8	99	6.4	6.0	171
JUL 30...	0915	1028	9813	3.9	350	8.3	92	6.6	6.9	323

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV 29...	9.90	15	15	7.6	7.7	6.9	6.8	19	9.0	9.3
JAN 30...	5.60	13	13	6.5	6.5	5.5	5.5	34	9.0	7.8
MAR 26...	4.50	10	10	6.1	6.2	4.8	4.8	42	7.0	6.7
MAY 28...	15.5	13	14	7.7	7.9	5.1	6.8	46	7.0	6.4
JUL 30...	20.5	27	29	14	15	10	10	.00	13	14

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)
NOV 29...	58	<2.0	<200	<200	100	160	840	840
JAN 30...	49	<2.0	<200	<200	200	250	750	740
MAR 26...	44	6.0	<200	400	250	390	610	630
MAY 28...	57	2.0	<200	200	60	290	620	640
JUL 30...	97	12	<200	<200	20	70	220	240

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571773 -- Lorberrry Cr Div Wells Outflow nr Lorberrry, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	1515	1028	930	1.3	--	--	--	--	--	--
JAN 29...	1700	1028	930	1.6	260	9.6	88	6.5	5.9	328
MAR 13...	1545	1028	930	2.4	400	11	97	6.4	6.2	286
APR 23...	1430	1028	930	2.3	410	9.8	91	5.6	5.1	304
MAY 29...	1515	1028	930	2.1	430	10	93	5.5	5.5	239
JUN 19...	1515	1028	930	2.5	420	10	98	5.5	4.2	213
JUL 31...	1445	1028	930	1.2	110	8.9	84	6.4	5.6	311
AUG 19...	1415	1028	930	.82	--	9.6	90	5.5	4.2	311

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV 28...	--	--	--	--	--	--	--	--	--	--
JAN 29...	12.0	13	14	23	23	1.2	1.2	3.6	3.6	--
MAR 13...	12.0	12	13	20	19	1.2	1.2	3.6	3.6	--
APR 23...	12.0	14	15	23	22	1.2	1.3	3.9	3.5	13
MAY 29...	12.0	11	11	20	20	1.1	1.1	3.2	3.1	8.2
JUN 19...	12.5	15	16	24	23	1.3	1.3	3.1	3.0	26
JUL 31...	12.5	12	12	22	21	1.1	1.2	3.7	3.6	18
AUG 19...	13.0	14	13	22	21	1.2	1.2	3.8	3.6	17

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	--	--	--	--	--	--	--	--	--	--
JAN 29...	<5.0	130	<20	1100	<40	<40	29	32	<3.0	<3.0
MAR 13...	<5.0	110	70	900	<40	<40	31	31	<3.0	<3.0
APR 23...	<5.0	140	490	1300	<40	<40	29	29	<3.0	<3.0
MAY 29...	--	110	300	950	<40	<40	26	26	<3.0	<3.0
JUN 19...	--	150	320	1200	<40	<40	29	29	<3.0	<3.0
JUL 31...	--	120	<20	1100	<40	<40	29	29	<3.0	<3.0
AUG 19...	--	130	<20	690	<40	<40	29	29	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571773 -- Lorberry Cr Div Wells Outflow nr Lorberry, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	--	--	--	--	--	--	--	--	--	--
JAN 29...	<3.0	<3.0	40	40	<3.0	<3.0	10000	11000	<40	<40
MAR 13...	<3.0	<3.0	38	38	<3.0	<3.0	10000	11000	<40	<40
APR 23...	<3.0	<3.0	59	58	<3.0	<3.0	5900	8000	<40	<40
MAY 29...	<3.0	<3.0	51	49	<3.0	<3.0	5400	7400	<40	<40
JUN 19...	3.0	<3.0	58	58	<3.0	<3.0	6000	7500	<40	<40
JUL 31...	<3.0	<3.0	40	39	<3.0	<3.0	10000	13000	<40	<40
AUG 19...	7.0	3.0	45	44	<3.0	<3.0	9500	10000	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	--	--	--	--	--	--	--	--
JAN 29...	2000	2000	59	58	<100	<100	94	140
MAR 13...	1900	1900	52	52	<100	<100	80	90
APR 23...	2100	2000	90	87	<100	<100	200	200
MAY 29...	1800	1700	70	68	<100	<100	150	150
JUN 19...	2100	2000	97	84	<100	<100	210	210
JUL 31...	1900	1900	52	53	<100	<100	80	87
AUG 19...	2100	2000	71	67	<100	<100	110	110

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571774 -- Lorberry Creek, Site E2-0, at Lorberry, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
JAN 29...	1430	1028	930	1.0	210	9.7	90	6.7	6.5	312
MAR 13...	1500	1028	930	1.0	210	11	99	6.7	6.3	281
APR 23...	1415	1028	930	4.0	320	10	95	6.5	6.0	271
MAY 29...	1500	1028	930	4.8	370	10	96	6.0	5.5	266
JUN 19...	1500	1028	930	1.5	360	10	99	5.9	4.4	317
JUL 31...	1430	1028	930	1.2	95	7.8	82	6.4	6.9	226
AUG 19...	1400	1028	930	.26	340	8.8	88	5.5	5.2	301

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED AS CAC03 (MG/L) (70508)
JAN 29...	11.5	14	15	22	21	1.2	1.2	5.9	5.7	--
MAR 13...	11.0	12	13	19	18	1.1	1.2	3.7	3.7	--
APR 23...	12.0	11	12	20	19	1.1	1.2	3.9	3.6	--
MAY 29...	12.5	10	10	19	19	1.1	1.1	3.3	3.1	11
JUN 19...	13.0	16	16	24	23	1.3	1.3	3.3	3.2	17
JUL 31...	17.5	16	16	13	12	.92	.9	2.5	2.4	--
AUG 19...	15.5	19	19	21	20	1.2	1.2	3.1	3.0	8.5

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC, DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC, TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM, WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
JAN 29...	8.2	120	<20	4600	<40	<40	26	36	<3.0	<3.0
MAR 13...	5.2	100	30	750	<40	<40	29	29	<3.0	<3.0
APR 23...	<5.0	110	40	1100	<40	<40	28	28	<3.0	<3.0
MAY 29...	--	110	50	980	<40	<40	25	25	<3.0	<3.0
JUN 19...	--	150	40	1100	<40	<40	28	29	<3.0	<3.0
JUL 31...	18	78	<20	460	<40	<40	16	16	<3.0	<3.0
AUG 19...	--	130	<20	500	<40	<40	24	24	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571774 -- Lorberry Creek, Site E2-0, at Lorberry, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
JAN 29...	<3.0	<3.0	34	42	<3.0	<3.0	6300	28000	<40	<40
MAR 13...	<3.0	<3.0	34	33	<3.0	<3.0	8300	8600	<40	<40
APR 23...	<3.0	<3.0	44	44	<3.0	<3.0	6000	7700	<40	<40
MAY 29...	<3.0	<3.0	45	46	<3.0	<3.0	4800	6700	<40	<40
JUN 19...	<3.0	<3.0	56	55	<3.0	<3.0	5500	7000	<40	<40
JUL 31...	<3.0	<3.0	7.0	7.0	<3.0	<3.0	390	2000	<40	<40
AUG 19...	<3.0	<3.0	37	35	<3.0	<3.0	2500	3500	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
JAN 29...	1700	2000	51	60	<100	<100	67	180
MAR 13...	1800	1700	48	48	<100	<100	71	79
APR 23...	1800	1700	63	63	<100	<100	130	140
MAY 29...	1600	1600	67	71	<100	<100	150	150
JUN 19...	2000	2000	85	87	<100	<100	200	200
JUL 31...	440	440	19	17	<100	<100	23	43
AUG 19...	1400	1400	59	58	<100	<100	140	140

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571776 -- Stumps Run at Lorberry, PA

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

Date	Time	AGENCY COLLECTING SAMPLE NUMBER (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE NUMBER (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PERCENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	1315	1028	930	.13	470	9.5	85	5.1	6.0	51.0
DEC 18...	1405	1028	930	1.0	430	12	97	5.4	6.1	51.0
JAN 08...	1325	1028	930	.11	530	12	86	5.6	6.1	47.0
29...	1415	1028	930	.34	410	11	94	5.8	6.1	48.0
MAR 13...	1445	1028	930	.68	380	12	97	6.0	6.0	42.0
APR 23...	1400	1028	930	1.1	390	9.9	92	6.2	6.3	46.0
MAY 29...	1445	1028	930	1.3	420	9.7	95	5.8	8.4	52.0
JUN 19...	1445	1028	930	.90	450	9.7	96	5.9	6.3	40.0
JUL 31...	1415	1028	930	.50	110	7.7	81	6.2	6.3	20.0
AUG 19...	1345	1028	930	.14	380	8.4	87	6.0	6.3	18.0

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED AS CAC03 (MG/L) (70508)
NOV 28...	10.5	3.9	3.4	2.5	2.2	.77	.70	.91	.9	--
DEC 18...	7.80	4.0	3.7	2.5	2.2	.59	.6	.8	.7	<5.0
JAN 08...	2.40	3.2	3.1	2.3	2.1	.61	.5	1.0	.8	--
29...	7.00	3.6	3.4	2.2	2.1	.68	.60	.72	.6	--
MAR 13...	5.60	3.0	2.9	2.1	2.0	.56	.60	.76	.7	--
APR 23...	12.0	3.4	3.4	2.3	2.2	.67	.70	.7	.8	--
MAY 29...	14.5	11	10	2.1	2.0	.90	.9	30	30	--
JUN 19...	15.0	3.0	2.8	1.9	1.8	.55	.60	.87	.6	--
JUL 31...	18.0	1.3	1.3	.95	.8	.25	.3	.83	.6	--
AUG 19...	17.0	1.3	1.2	.90	.8	.31	.40	.96	.80	--

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	<5.0	19	50	30	<40	<40	18	18	<3.0	<3.0
DEC 18...	--	19	30	80	<40	<40	21	21	<3.0	<3.0
JAN 08...	<5.0	15	<20	<20	<40	<40	14	14	<3.0	<3.0
29...	<5.0	18	<20	30	<40	<40	15	18	<3.0	<3.0
MAR 13...	<5.0	15	<20	30	<40	<40	14	15	<3.0	<3.0
APR 23...	<5.0	17	<20	60	<40	<40	17	18	<3.0	<3.0
MAY 29...	110	6.4	<20	60	<40	<40	64	65	50	48
JUN 19...	<5.0	13	<20	120	<40	<40	14	14	<3.0	<3.0
JUL 31...	5.7	2.8	<20	110	<40	<40	5.0	5.0	<3.0	<3.0
AUG 19...	<5.0	2.6	<20	350	<40	<40	5.0	8.0	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571776 -- Stumps Run at Lorberry, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	<3.0	<3.0	4.0	<3.0	680	30	<40	<40
DEC 18...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	50	140	<40	<40
JAN 08...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	30	20	<40	<40
JAN 29...	<3.0	<3.0	<3.0	<3.0	7.0	<3.0	330	80	<40	<40
MAR 13...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	40	30	<40	<40
APR 23...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	10	100	<40	<40
MAY 29...	81	78	40	39	63	61	240	240	110	110
JUN 19...	<3.0	<3.0	<3.0	<3.0	<3.0	4.0	10	90	<40	<40
JUL 31...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	50	80	<40	<40
AUG 19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	30	700	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	90	50	7.0	<5.0	<100	<100	30	27
DEC 18...	100	110	6.0	7.0	<100	<100	41	40
JAN 08...	30	20	6.0	<5.0	<100	<100	17	20
JAN 29...	60	50	<5.0	<5.0	<100	<100	40	53
MAR 13...	50	50	<5.0	<5.0	<100	<100	15	19
APR 23...	50	60	8.0	6.0	<100	<100	22	26
MAY 29...	420	410	66	62	<100	<100	47	48
JUN 19...	20	30	<5.0	<5.0	<100	<100	10	79
JUL 31...	30	20	<5.0	<5.0	<100	<100	<3.0	21
AUG 19...	20	110	<5.0	<5.0	<100	<100	5.0	13

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177610 -- Lorberry Creek Wetlands Inflow at Lorberry, PA

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

Date	Time	AGENCY COLLECTING SAMPLE NUMBER (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE NUMBER (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED SATURATION (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	1430	1028	930	1.3	620	9.8	93	3.8	3.9	470
DEC 18...	1350	1028	930	1.5	420	11	100	5.2	4.2	397
JAN 08...	1320	1028	930	1.5	420	11	99	5.6	4.8	357
29...	1500	1028	930	1.6	290	10	96	6.3	5.8	330
MAR 13...	1430	1028	930	1.3	300	12	97	6.3	5.9	295
APR 23...	1340	1028	930	2.2	370	10	94	6.2	6.2	283
MAY 29...	1140	1028	930	1.8	430	11	101	5.5	5.4	273
JUN 19...	1435	1028	930	2.2	420	11	104	5.4	4.3	326
JUL 31...	1400	1028	930	1.2	110	10	97	6.4	5.5	313
AUG 19...	1335	1028	930	.82	390	10	99	4.5	3.8	369

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED AS CAC03 (MG/L) (70508)
NOV 28...	12.5	23	22	33	31	1.6	1.6	3.6	3.5	9.2
DEC 18...	12.0	21	20	33	31	1.5	1.5	4.0	3.9	13
JAN 08...	12.0	18	18	25	24	1.5	1.4	3.7	3.6	<5.0
29...	12.0	14	14	24	23	1.2	1.2	3.7	3.5	--
MAR 13...	12.0	13	13	20	19	1.2	1.1	3.5	3.5	--
APR 23...	12.5	12	13	21	19	1.2	1.2	4.1	3.6	--
MAY 29...	12.0	11	11	20	19	1.1	1.1	3.3	3.1	6.9
JUN 19...	13.0	16	16	25	24	1.3	1.3	3.3	3.0	20
JUL 31...	13.5	13	12	23	21	1.2	1.2	3.9	3.7	18
AUG 19...	13.5	18	18	26	25	1.4	1.4	3.2	3.2	29

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	--	210	1400	1600	<40	<40	31	31	<3.0	<3.0
DEC 18...	--	200	1200	1900	<40	<40	29	29	<3.0	<3.0
JAN 08...	--	160	140	1400	<40	<40	33	33	<3.0	<3.0
29...	<5.0	130	<20	1300	<40	<40	30	31	<3.0	<3.0
MAR 13...	7.5	110	30	870	<40	<40	30	31	<3.0	<3.0
APR 23...	<5.0	120	170	1000	<40	<40	28	28	<3.0	<3.0
MAY 29...	--	110	340	960	<40	<40	26	26	<3.0	<3.0
JUN 19...	--	150	340	1300	<40	<40	29	29	<3.0	<3.0
JUL 31...	--	120	20	840	<40	<40	29	29	<3.0	<3.0
AUG 19...	--	170	770	1000	<40	<40	29	30	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177610 -- Lorberry Creek Wetlands Inflow at Lorberry, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	68	67	<3.0	<3.0	4600	5000	<40	<40
DEC 18...	<3.0	<3.0	77	74	<3.0	<3.0	6400	9400	<40	<40
JAN 08...	<3.0	<3.0	64	63	<3.0	<3.0	7300	9900	<40	<40
29...	<3.0	<3.0	42	41	<3.0	<3.0	10000	13000	<40	<40
MAR 13...	<3.0	<3.0	39	38	<3.0	<3.0	10000	11000	<40	<40
APR 23...	<3.0	<3.0	46	45	<3.0	<3.0	6500	8000	<40	<40
MAY 29...	<3.0	<3.0	51	48	<3.0	<3.0	5400	7300	<40	<40
JUN 19...	<3.0	<3.0	60	58	<3.0	<3.0	6000	7500	<40	<40
JUL 31...	<3.0	<3.0	40	38	<3.0	<3.0	10000	10000	<40	<40
AUG 19...	<3.0	<3.0	63	62	<3.0	<3.0	5600	6700	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	2500	2400	110	100	<100	<100	270	250
DEC 18...	2800	2700	120	110	<100	<100	290	280
JAN 08...	2300	2300	92	91	<100	<100	230	220
29...	2000	2000	61	58	<100	<100	100	110
MAR 13...	2000	1900	56	51	<100	<100	150	87
APR 23...	1900	1800	67	65	<100	<100	140	130
MAY 29...	1800	1700	72	66	<100	<100	150	150
JUN 19...	2100	2000	85	84	<100	<100	210	210
JUL 31...	2000	1900	57	55	<100	<100	86	88
AUG 19...	2300	2300	95	93	<100	<100	230	220

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177612 -- Lorberry Cr Wetlands Cell 1 Outflow at Lorberry, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	1420	1028	930	1.1	590	9.7	93	3.9	3.9	475
DEC 18...	1340	1028	930	1.6	230	11	100	6.4	5.4	322
JAN 08...	1310	1028	930	1.4	420	10	94	5.6	4.7	360
29...	1630	1028	930	1.4	300	9.9	93	6.4	5.4	346
MAR 13...	1525	1028	930	1.6	390	11	100	6.5	--	296
APR 23...	1330	1028	930	1.3	330	10	100	6.4	6.5	286
MAY 29...	1430	1028	930	1.5	440	11	104	5.3	4.9	279
JUN 19...	1425	1028	930	1.4	430	11	109	5.2	4.2	331
JUL 31...	1350	1028	930	1.2	100	9.5	97	6.4	5.7	311
AUG 19...	1325	1028	930	1.2	380	10	105	4.7	4.2	375

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED AS CAC03 (MG/L) (70508)
NOV 28...	13.0	24	22	34	32	1.6	1.6	3.8	3.7	11
DEC 18...	11.5	14	13	24	24	1.2	1.3	3.7	3.7	5.9
JAN 08...	11.0	18	18	25	24	1.4	1.4	3.7	3.5	<5.0
29...	13.0	16	15	25	24	1.3	1.3	3.6	3.5	14
MAR 13...	11.5	--	--	--	--	--	--	--	--	--
APR 23...	14.5	13	13	21	20	1.2	1.2	4.5	3.5	--
MAY 29...	14.0	13	12	21	20	1.1	1.2	3.1	3.0	11
JUN 19...	16.0	16	16	25	24	1.3	1.3	3.3	3.1	23
JUL 31...	16.5	13	12	22	21	1.1	1.2	3.7	3.5	18
AUG 19...	16.0	22	21	27	26	1.5	1.4	3.9	3.6	22

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	--	220	1700	1800	<40	<40	30	31	<3.0	<3.0
DEC 18...	--	130	<20	1100	<40	<40	29	29	<3.0	<3.0
JAN 08...	--	160	100	1000	<40	<40	32	32	<3.0	<3.0
29...	--	150	<20	1100	<40	<40	30	31	<3.0	<3.0
MAR 13...	--	--	--	--	--	--	--	--	--	--
APR 23...	<5.0	120	<20	1000	<40	<40	28	28	<3.0	<3.0
MAY 29...	--	120	230	1100	<40	<40	26	26	<3.0	<3.0
JUN 19...	--	150	230	1100	<40	<40	29	29	<3.0	<3.0
JUL 31...	--	120	<20	810	<40	<40	29	29	<3.0	<3.0
AUG 19...	--	170	340	980	<40	<40	30	30	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177612 -- Lorberry Cr Wetlands Cell 1 Outflow at Lorberry, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	71	69	<3.0	<3.0	4100	5000	<40	<40
DEC 18...	<3.0	<3.0	43	42	<3.0	<3.0	9300	9700	<40	<40
JAN 08...	<3.0	<3.0	64	62	<3.0	<3.0	7100	8400	<40	<40
29...	<3.0	<3.0	49	48	<3.0	<3.0	8700	10000	<40	<40
MAR 13...	--	--	--	--	--	--	--	--	--	--
APR 23...	<3.0	<3.0	47	45	<3.0	<3.0	5800	7600	<40	<40
MAY 29...	<3.0	<3.0	56	54	<3.0	<3.0	4500	6800	<40	<40
JUN 19...	<3.0	<3.0	63	61	<3.0	<3.0	5400	7200	<40	<40
JUL 31...	<3.0	<3.0	39	38	<3.0	<3.0	9300	9900	<40	<40
AUG 19...	<3.0	<3.0	68	64	<3.0	<3.0	5100	6400	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	2600	2500	110	110	<100	<100	280	250
DEC 18...	2000	2000	62	62	<100	<100	180	160
JAN 08...	2400	2300	96	92	<100	<100	240	220
29...	2100	2100	71	69	<100	<100	150	150
MAR 13...	--	--	--	--	--	--	--	--
APR 23...	1900	1800	65	64	<100	<100	150	130
MAY 29...	1800	1800	80	76	<100	<100	180	170
JUN 19...	2100	2100	93	92	<100	<100	230	220
JUL 31...	1900	1900	55	53	<100	<100	84	83
AUG 19...	2400	2300	98	96	<100	<100	240	240

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177614 -- Lorberry Cr Wetlands Cell 2 Outflow at Lorberry,PA

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

Date	Time	AGENCY COLLECTING SAMPLE NUMBER (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE NUMBER (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED SATURATION (PERCENT) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	1410	1028	930	.94	590	9.6	93	3.9	4.0	475
DEC 18...	1320	1028	930	1.4	220	11	96	6.5	5.5	319
JAN 08...	1300	1028	930	1.3	410	11	94	5.7	4.8	362
29...	1615	1028	930	1.3	290	9.7	93	6.4	5.3	348
MAR 13...	1520	1028	930	1.6	320	11	100	6.6	--	295
APR 23...	1320	1028	930	1.3	300	10	102	6.5	6.2	285
MAY 29...	1405	1028	930	1.4	430	10	108	5.2	4.9	293
JUN 19...	1415	1028	930	1.3	420	10	112	5.3	4.2	320
JUL 31...	1330	1028	930	1.2	120	10	113	6.4	5.6	313
AUG 19...	1305	1028	930	1.3	380	10	110	5.1	4.1	379

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED AS CAC03 (MG/L) (70508)
NOV 28...	13.5	24	23	34	32	1.5	1.6	3.8	3.7	9.0
DEC 18...	11.0	14	13	24	23	1.2	1.3	3.7	3.7	<5.0
JAN 08...	10.5	18	18	26	25	1.4	1.4	3.8	3.6	<5.0
29...	13.0	16	17	25	25	1.3	1.4	3.5	3.6	18
MAR 13...	11.0	--	--	--	--	--	--	--	--	--
APR 23...	15.0	13	13	20	20	1.2	1.2	3.8	3.6	--
MAY 29...	17.5	13	13	21	20	1.2	1.2	3.0	3.0	13
JUN 19...	20.0	16	16	25	24	1.3	1.3	3.3	3.1	22
JUL 31...	21.0	13	12	22	20	1.3	1.1	3.7	3.4	18
AUG 19...	18.5	21	21	27	26	1.4	1.5	3.9	3.7	22

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	--	220	1800	1800	<40	<40	30	30	<3.0	<3.0
DEC 18...	--	130	<20	1000	<40	<40	29	29	<3.0	<3.0
JAN 08...	--	160	90	990	<40	<40	32	32	<3.0	<3.0
29...	--	150	<20	1000	<40	<40	31	31	<3.0	<3.0
MAR 13...	--	--	--	--	--	--	--	--	--	--
APR 23...	<5.0	120	<20	950	<40	<40	29	28	<3.0	<3.0
MAY 29...	--	130	250	1100	<40	<40	26	26	<3.0	<3.0
JUN 19...	--	150	180	1100	<40	<40	29	28	<3.0	<3.0
JUL 31...	--	120	<20	760	<40	<40	29	29	<3.0	<3.0
AUG 19...	--	170	330	890	<40	<40	30	30	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177614 -- Lorberry Cr Wetlands Cell 2 Outflow at Lorberry,PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	70	69	<3.0	<3.0	3800	4900	<40	<40
DEC 18...	<3.0	<3.0	44	41	<3.0	<3.0	8800	9400	<40	<40
JAN 08...	<3.0	<3.0	64	64	<3.0	<3.0	6900	8300	<40	<40
29...	<3.0	<3.0	51	53	<3.0	<3.0	7900	8900	<40	<40
MAR 13...	--	--	--	--	--	--	--	--	--	--
APR 23...	<3.0	<3.0	45	46	<3.0	<3.0	5300	7300	<40	<40
MAY 29...	<3.0	<3.0	57	55	<3.0	<3.0	4200	6200	<40	<40
JUN 19...	<3.0	<3.0	62	61	<3.0	<3.0	5400	7200	<40	<40
JUL 31...	<3.0	<3.0	40	37	<3.0	<3.0	8500	9200	<40	<40
AUG 19...	<3.0	<3.0	68	67	<3.0	<3.0	4800	6000	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	2600	2500	110	110	<100	<100	270	260
DEC 18...	2000	1900	61	58	<100	<100	98	100
JAN 08...	2400	2300	96	94	<100	<100	230	230
29...	2200	2200	76	76	<100	<100	160	180
MAR 13...	--	--	--	--	--	--	--	--
APR 23...	1800	1800	64	65	<100	<100	120	130
MAY 29...	1800	1800	82	79	<100	<100	200	190
JUN 19...	2100	2100	91	89	<100	<100	220	220
JUL 31...	1900	1900	58	52	<100	<100	80	86
AUG 19...	2400	2400	100	99	<100	<100	240	240

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177616 -- Lorberry Cr Wetlands Cell 3 Outflow at Lorberry, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PERCENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	1400	1028	930	1.1	580	9.6	94	4.0	4.0	476
DEC 18...	1310	1028	930	1.6	210	11	100	6.6	5.5	319
JAN 08...	1250	1028	930	1.4	410	11	95	5.7	4.8	362
29...	1600	1028	930	1.6	300	9.9	95	6.3	5.3	355
MAR 13...	1515	1028	930	1.8	380	11	99	6.6	--	294
APR 23...	1310	1028	930	1.2	270	10	102	6.6	6.3	285
MAY 29...	1355	1028	930	1.5	420	10	108	5.2	4.9	292
JUN 19...	1355	1028	930	1.4	410	10	113	5.3	4.2	332
JUL 31...	1320	1028	930	1.8	120	9.3	106	6.5	5.7	314
AUG 19...	1255	1028	930	1.5	370	9.9	108	5.1	4.1	379

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED AS CAC03 (70508)
NOV 28...	14.0	24	23	35	33	1.7	1.6	3.9	3.8	8.9
DEC 18...	11.0	14	14	24	23	1.2	1.2	3.7	3.7	<5.0
JAN 08...	9.40	18	18	26	25	1.4	1.4	3.8	3.6	<5.0
29...	13.5	17	17	26	25	1.3	1.3	3.6	3.5	16
MAR 13...	11.0	--	--	--	--	--	--	--	--	--
APR 23...	16.0	13	13	21	20	1.2	1.2	3.7	3.6	--
MAY 29...	18.0	13	12	21	20	1.2	1.2	3.1	3.0	13
JUN 19...	21.0	16	16	25	23	1.3	1.3	3.2	3.1	22
JUL 31...	21.5	13	12	22	20	1.1	1.1	3.6	3.3	18
AUG 19...	19.5	21	21	27	26	1.5	1.5	3.8	3.7	22

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	--	220	1800	1900	<40	<40	30	30	<3.0	<3.0
DEC 18...	--	130	<20	990	<40	<40	29	29	<3.0	<3.0
JAN 08...	--	160	60	1000	<40	<40	32	32	<3.0	<3.0
29...	--	160	<20	1000	<40	<40	31	31	<3.0	<3.0
MAR 13...	--	--	--	--	--	--	--	--	--	--
APR 23...	<5.0	120	<20	940	<40	<40	27	28	<3.0	<3.0
MAY 29...	--	130	230	950	<40	<40	26	26	<3.0	<3.0
JUN 19...	--	150	160	1200	<40	<40	28	28	<3.0	<3.0
JUL 31...	--	120	<20	750	<40	<40	29	29	<3.0	<3.0
AUG 19...	--	170	340	900	<40	<40	30	30	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177616 -- Lorberry Cr Wetlands Cell 3 Outflow at Lorberry, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	73	70	<3.0	<3.0	3800	4800	<40	<40
DEC 18...	<3.0	<3.0	42	41	<3.0	<3.0	8400	9300	<40	<40
JAN 08...	<3.0	<3.0	64	64	<3.0	<3.0	6800	8300	<40	<40
29...	<3.0	<3.0	54	53	<3.0	<3.0	7600	8800	<40	<40
MAR 13...	--	--	--	--	--	--	--	--	--	--
APR 23...	<3.0	<3.0	47	44	<3.0	<3.0	5300	7200	<40	<40
MAY 29...	<3.0	<3.0	58	54	<3.0	<3.0	4100	6000	<40	<40
JUN 19...	<3.0	<3.0	63	60	<3.0	<3.0	5200	6900	<40	<40
JUL 31...	<3.0	<3.0	39	38	<3.0	<3.0	8300	9200	<40	<40
AUG 19...	<3.0	<3.0	69	66	<3.0	<3.0	4800	6100	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	2600	2500	120	110	<100	<100	280	260
DEC 18...	2000	1900	59	60	<100	<100	98	100
JAN 08...	2400	2400	95	95	<100	<100	230	230
29...	2200	2200	78	79	<100	<100	180	170
MAR 13...	--	--	--	--	--	--	--	--
APR 23...	1900	1800	68	65	<100	<100	120	130
MAY 29...	1800	1800	82	83	<100	<100	200	190
JUN 19...	2100	2000	90	87	<100	<100	220	220
JUL 31...	1900	1900	56	52	<100	<100	80	85
AUG 19...	2400	2400	100	97	<100	<100	240	240

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177618 -- Lorberry Cr Wetlands Cell 4 Outflow at Lorberry, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED SATURATION (%) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	1340	1028	930	1.4	560	9.6	94	4.1	4.0	475
DEC 18...	1240	1028	930	1.7	210	11	100	6.6	5.5	319
JAN 08...	1230	1028	930	1.6	410	11	93	5.8	4.7	363
29...	1530	1028	930	1.9	290	9.9	96	6.4	5.1	361
MAR 13...	1345	1028	930	2.1	220	10	98	6.7	6.3	293
APR 23...	1300	1028	930	1.6	290	10	101	6.5	6.3	285
MAY 29...	1345	1028	930	1.6	420	9.9	106	5.3	4.9	293
JUN 19...	1345	1028	930	1.6	400	9.7	112	5.3	4.2	334
JUL 31...	1310	1028	930	2.2	120	8.7	102	6.5	5.7	312
AUG 19...	1245	1028	930	2.2	350	9.4	105	5.0	4.1	378

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED AS CAC03 (MG/L) (70508)
NOV 28...	14.5	24	23	35	33	1.6	1.6	3.9	3.8	8.7
DEC 18...	10.5	14	13	24	23	1.2	1.2	3.7	3.6	<5.0
JAN 08...	9.00	18	18	26	25	1.4	1.4	3.8	3.6	<5.0
29...	14.0	18	17	26	24	1.3	1.4	3.5	3.5	20
MAR 13...	11.0	14	13	20	19	1.2	1.1	3.5	3.4	--
APR 23...	16.0	13	13	21	20	1.1	1.2	3.7	3.5	--
MAY 29...	19.0	13	13	21	20	1.2	1.2	3.0	3.0	13
JUN 19...	22.0	16	16	25	24	1.3	1.2	3.3	3.1	23
JUL 31...	23.0	13	12	22	20	1.1	1.1	3.5	3.4	18
AUG 19...	20.5	21	21	27	25	1.5	1.5	3.8	3.6	22

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	--	220	1900	1900	<40	<40	30	30	<3.0	<3.0
DEC 18...	--	130	<20	990	<40	<40	29	29	<3.0	<3.0
JAN 08...	--	160	60	1000	<40	<40	32	33	<3.0	<3.0
29...	--	160	<20	1000	<40	<40	31	32	<3.0	<3.0
MAR 13...	6.2	110	<20	850	<40	<40	30	30	<3.0	<3.0
APR 23...	<5.0	120	<20	940	<40	<40	27	28	<3.0	<3.0
MAY 29...	--	130	120	960	<40	<40	26	26	<3.0	<3.0
JUN 19...	--	150	120	1200	<40	<40	28	28	<3.0	<3.0
JUL 31...	--	120	<20	700	<40	<40	29	29	<3.0	<3.0
AUG 19...	--	170	290	850	<40	<40	30	30	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177618 -- Lorberry Cr Wetlands Cell 4 Outflow at Lorberry, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	72	69	<3.0	<3.0	3600	4800	<40	<40
DEC 18...	<3.0	<3.0	41	40	<3.0	<3.0	8300	9100	<40	<40
JAN 08...	<3.0	<3.0	65	63	<3.0	<3.0	6800	8300	<40	<40
29...	<3.0	<3.0	56	54	<3.0	<3.0	7300	8400	<40	<40
MAR 13...	<3.0	<3.0	39	37	<3.0	<3.0	8400	9600	<40	<40
APR 23...	<3.0	<3.0	45	44	<3.0	<3.0	5000	7100	<40	<40
MAY 29...	<3.0	<3.0	56	55	<3.0	<3.0	3900	6000	<40	<40
JUN 19...	<3.0	<3.0	63	60	<3.0	<3.0	5000	7000	<40	<40
JUL 31...	<3.0	<3.0	38	37	<3.0	<3.0	7500	8800	<40	<40
AUG 19...	<3.0	<3.0	68	65	<3.0	<3.0	4600	5900	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	2600	2500	120	110	<100	<100	290	260
DEC 18...	2000	1900	60	58	<100	<100	98	96
JAN 08...	2400	2300	95	96	<100	<100	240	230
29...	2200	2200	81	78	<100	<100	180	180
MAR 13...	1900	1900	53	52	<100	<100	130	88
APR 23...	1800	1800	64	65	<100	<100	120	130
MAY 29...	1800	1800	79	80	<100	<100	190	190
JUN 19...	2100	2100	92	89	<100	<100	230	230
JUL 31...	1900	1900	55	52	<100	<100	77	84
AUG 19...	2400	2300	100	97	<100	<100	240	240

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

403524076262301 -- Piped Discharge near Cell 4, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, SATURATION (PER-CENT) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)
NOV 28...	1450	1028	930	<.01	510	6.5	58	4.7	5.7	29.0
DEC 18...	1250	1028	930	.01	430	9.6	80	5.0	5.6	29.0
JAN 08...	1240	1028	930	.01	520	9.4	73	5.4	5.7	29.0
JAN 29...	1545	1028	930	.01	390	9.8	77	5.7	5.7	23.0
Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED AS CAC03 (70508)
NOV 28...	9.80	2.2	2.0	1.0	.93	.70	.7	.9	.7	--
DEC 18...	7.60	2.0	1.9	.95	.92	.56	.8	.8	.7	<5.0
JAN 08...	5.30	2.4	2.4	1.2	1.1	.45	.5	1.0	.8	--
JAN 29...	5.00	1.7	1.6	.93	1.0	.51	1.1	.58	.5	--
Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (MG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (MG/L AS AL) (01105)	ARSENIC DIS-SOLVED (MG/L AS AS) (01000)	ARSENIC TOTAL (MG/L AS AS) (01002)	BARIUM, DIS-SOLVED (MG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (MG/L AS BA) (01007)	CADMIUM, DIS-SOLVED (MG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (MG/L AS CD) (01027)
NOV 28...	6.2	4.1	80	500	<40	<40	14	17	<3.0	<3.0
DEC 18...	--	6.5	140	1200	<40	<40	19	27	<3.0	<3.0
JAN 08...	7.4	4.3	70	650	<40	<40	8.0	12	<3.0	<3.0
JAN 29...	<5.0	4.9	560	3200	<40	<40	11	33	<3.0	<3.0
Date	CHROMIUM, DIS-SOLVED (MG/L AS CR) (01030)	CHROMIUM, TOTAL RECOVERABLE (MG/L AS CR) (01034)	COBALT, DIS-SOLVED (MG/L AS CO) (01035)	COBALT, TOTAL RECOVERABLE (MG/L AS CO) (01037)	COPPER, DIS-SOLVED (MG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (MG/L AS CU) (01042)	IRON, DIS-SOLVED (MG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (MG/L AS FE) (01045)	LEAD, DIS-SOLVED (MG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (MG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	<3.0	<3.0	4.0	<3.0	260	510	<40	<40
DEC 18...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	230	1300	<40	<40
JAN 08...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	190	950	<40	<40
JAN 29...	<3.0	5.0	<3.0	<3.0	<3.0	<3.0	610	3600	<40	<40
Date	MANGANESE, DIS-SOLVED (MG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (MG/L AS MN) (01055)	NICKEL, DIS-SOLVED (MG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (MG/L AS NI) (01067)	SELENIUM, DIS-SOLVED (MG/L AS SE) (01145)	SELENIUM, TOTAL (MG/L AS SE) (01147)	ZINC, DIS-SOLVED (MG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (MG/L AS ZN) (01092)		
NOV 28...	180	170	<5.0	<5.0	<100	<100	22	14		
DEC 18...	170	170	<5.0	<5.0	<100	<100	17	25		
JAN 08...	110	110	<5.0	<5.0	<100	<100	<3.0	<3.0		
JAN 29...	150	160	<5.0	<5.0	<100	<100	41	44		

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

403530076262601 -- Piped Discharge near Cell 1, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED- UCTION POTENTIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD- ARD (STAND- UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD (STAND- UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 28...	1440	1028	930	<.01	530	9.1	82	4.9	6.0	52.0
DEC 18...	1410	1028	930	<.01	440	11	98	5.5	5.9	52.0
JAN 08...	1330	1028	930	<.01	530	10	86	5.3	5.8	49.0
JAN 29...	1445	1028	930	<.01	430	10	90	5.6	5.8	480
Date	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV 28...	10.5	3.5	3.3	2.2	2.0	.56	.6	.9	.8	--
DEC 18...	8.70	3.3	3.2	2.4	2.4	.48	.9	.9	.9	<5.0
JAN 08...	6.70	3.2	3.1	2.5	2.4	.44	.5	1.1	.9	--
JAN 29...	8.90	3.4	3.2	2.7	2.5	.46	.5	.89	.8	--
Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	5.6	14	60	110	<40	<40	19	21	<3.0	<3.0
DEC 18...	--	14	80	1800	<40	<40	18	27	<3.0	<3.0
JAN 08...	5.7	13	50	70	<40	<40	14	14	<3.0	<3.0
JAN 29...	6.1	14	60	200	<40	<40	13	14	<3.0	<3.0
Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	20	100	<40	<40
DEC 18...	<3.0	3.0	<3.0	3.0	<3.0	<3.0	120	1900	<40	<40
JAN 08...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	20	20	<40	<40
JAN 29...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	290	470	<40	<40
Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)		
NOV 28...	100	110	6.0	<5.0	<100	<100	16	17		
DEC 18...	140	240	<5.0	<5.0	<100	<100	15	19		
JAN 08...	100	100	<5.0	<5.0	<100	<100	<3.0	5.0		
JAN 29...	110	110	<5.0	<5.0	<100	<100	25	15		

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177620 -- Lorberry Creek below Wetlands at Lorberry, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED SATURATION (%) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	1330	1028	930	4.7	590	9.5	91	4.1	4.1	430
DEC 18...	1215	1028	930	2.9	230	11	100	6.6	6.2	272
JAN 08...	1215	1028	930	4.2	400	11	98	5.8	4.8	355
29...	1515	1028	930	3.0	270	10	94	6.6	5.6	302
MAR 13...	1330	1028	930	5.2	220	11	96	6.5	6.3	263
APR 23...	1145	1028	930	8.4	290	10	96	6.3	6.3	249
MAY 29...	1300	1028	930	7.3	340	10	97	5.8	5.5	258
JUN 19...	1245	1028	930	4.8	370	10	100	5.7	4.3	305
JUL 31...	1200	1028	930	1.6	120	8.6	97	6.4	5.7	295
AUG 19...	1145	1028	930	2.5	380	9.4	98	5.2	4.1	361

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED AS CAC03 (MG/L) (70508)
NOV 28...	13.0	22	20	31	29	1.6	1.5	3.7	3.5	6.7
DEC 18...	9.80	12	11	18	16	1.1	1.1	5.3	5.1	<5.0
JAN 08...	9.00	19	18	26	25	1.4	1.4	3.6	3.5	<5.0
29...	12.0	15	14	21	20	1.1	1.2	3.6	3.4	--
MAR 13...	10.0	13	12	18	17	1.1	1.1	3.3	3.2	--
APR 23...	12.0	12	12	19	18	1.2	1.2	3.4	3.3	--
MAY 29...	14.0	11	10	19	18	1.1	1.1	2.9	2.9	9.8
JUN 19...	15.5	15	14	22	21	1.2	1.2	3.1	2.9	18
JUL 31...	21.0	13	12	20	19	1.2	1.2	3.6	3.4	18
AUG 19...	17.0	20	19	26	24	1.4	1.4	3.5	3.4	23

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	--	190	1600	1800	<40	<40	30	30	<3.0	<3.0
DEC 18...	--	100	100	1100	<40	<40	27	27	<3.0	<3.0
JAN 08...	--	160	40	1100	<40	<40	31	32	<3.0	<3.0
29...	<5.0	130	<20	2000	<40	<40	27	30	<3.0	<3.0
MAR 13...	<5.0	100	<20	690	<40	<40	28	28	<3.0	<3.0
APR 23...	<5.0	110	30	860	<40	<40	26	26	<3.0	<3.0
MAY 29...	--	110	<20	870	<40	<40	25	26	<3.0	<3.0
JUN 19...	--	140	50	1000	<40	<40	27	27	<3.0	<3.0
JUL 31...	--	120	40	670	<40	<40	27	28	<3.0	<3.0
AUG 19...	--	170	380	840	<40	<40	29	29	<3.0	4.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177620 -- Lorberry Creek below Wetlands at Lorberry, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	63	59	5.0	<3.0	3200	4300	<40	<40
DEC 18...	<3.0	<3.0	27	26	<3.0	<3.0	4600	6500	<40	<40
JAN 08...	<3.0	<3.0	65	64	<3.0	<3.0	6700	8800	<40	<40
29...	<3.0	<3.0	41	43	<3.0	<3.0	5700	13000	<40	<40
MAR 13...	<3.0	<3.0	33	31	<3.0	<3.0	8000	8000	<40	<40
APR 23...	<3.0	4.0	40	41	<3.0	<3.0	5400	6600	<40	<40
MAY 29...	<3.0	<3.0	44	43	<3.0	<3.0	4700	6000	<40	<40
JUN 19...	<3.0	<3.0	53	52	<3.0	<3.0	4800	6400	<40	<40
JUL 31...	<3.0	<3.0	38	35	<3.0	<3.0	7500	8000	<40	<40
AUG 19...	<3.0	<3.0	64	62	<3.0	<3.0	5000	5800	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	2300	2200	110	97	<100	<100	590	230
DEC 18...	1400	1300	42	39	<100	<100	79	80
JAN 08...	2400	2400	99	95	<100	<100	240	230
29...	1800	1800	61	63	<100	<100	130	150
MAR 13...	1700	1600	47	44	<100	<100	71	76
APR 23...	1600	1600	59	59	<100	<100	120	120
MAY 29...	1600	1500	63	63	<100	<100	140	140
JUN 19...	1900	1800	82	78	<100	<100	200	190
JUL 31...	1800	1700	50	48	<100	<100	72	91
AUG 19...	2300	2200	97	94	<100	<100	230	230

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

403521076260601 -- Shadle Mine Shaft at Lorberry, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED- UCTION POTENTIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	PH WATER WHOLE FIELD- ARD (00400)	PH WATER WHOLE LAB (STAND- ARD (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 28...	1245	1028	930	<.01	350	.5	5	3.9	3.2	1510
JAN 29...	1400	1028	930	<.01	340	.6	6	3.7	3.2	1520
MAR 13...	1315	1028	930	<.01	370	1.3	13	4.1	3.2	1510
APR 23...	1115	1028	930	.01	390	6.3	60	4.1	3.3	1450
MAY 29...	1215	1028	930	<.01	350	1.0	9	3.8	3.6	1570
JUL 31...	1130	1028	930	<.01	130	.00	.000	4.0	3.0	1580
AUG 19...	1115	1028	930	<.01	210	.00	.000	4.0	3.0	1540

Date	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV 28...	13.0	130	130	59	57	3.2	3.3	1.7	1.6	3800
JAN 29...	13.0	130	130	58	56	3.3	3.4	1.6	1.6	380
MAR 13...	12.5	130	120	58	56	3.4	3.4	1.7	1.7	400
APR 23...	12.5	130	130	59	57	3.3	3.4	1.8	2.1	370
MAY 29...	13.0	130	130	61	59	3.4	3.5	1.9	2.0	390
JUL 31...	13.0	140	130	60	57	3.6	3.6	1.7	1.5	390
AUG 19...	13.0	140	130	59	57	3.6	3.6	1.8	1.6	390

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIIUM, DIS- SOLVED (µG/L AS BA) (01005)	BARIIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	940	5100	5100	<40	<40	15	15	4.0	6.0
JAN 29...	940	4600	4600	<40	<40	14	16	<3.0	<3.0
MAR 13...	910	4400	4400	<40	<40	15	15	3.0	6.0
APR 23...	920	3900	3900	<40	<40	16	16	6.0	7.0
MAY 29...	950	4100	4100	<40	<40	15	15	8.0	10
JUL 31...	960	5200	5300	<40	<40	16	17	<3.0	3.0
AUG 19...	980	5300	5300	<40	<40	15	15	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

403521076260601 -- Shadle Mine Shaft at Lorberry, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	260	260	<3.0	<3.0	200000	200000	<40	<40
JAN 29...	<3.0	<3.0	240	240	<3.0	<3.0	200000	200000	<40	<40
MAR 13...	<3.0	<3.0	230	220	<3.0	<3.0	190000	190000	<40	<40
APR 23...	<3.0	<3.0	220	210	<3.0	<3.0	190000	190000	<40	<40
MAY 29...	<3.0	<3.0	230	220	<3.0	<3.0	200000	200000	<40	<40
JUL 31...	<3.0	<3.0	260	250	<3.0	<3.0	210000	200000	<40	<40
AUG 19...	<3.0	<3.0	260	250	<3.0	<3.0	200000	200000	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	8800	8600	270	260	<100	<100	430	420
JAN 29...	8600	8400	250	240	<100	<100	400	440
MAR 13...	8400	8200	240	230	<100	<100	380	370
APR 23...	8300	8200	220	220	<100	<100	350	350
MAY 29...	8800	8600	240	230	<100	<100	370	350
JUL 31...	8900	8600	270	260	<100	<100	410	410
AUG 19...	8800	8700	270	260	<100	<100	420	420

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571777 -- Lorberry Cr ab Panther Head Disch nr Lorberry Jct, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	1200	1028	930	3.6	590	9.8	91	4.1	4.0	413
JAN 29...	1300	1028	930	3.7	350	11	99	6.3	4.9	290
MAR 13...	1215	1028	930	5.5	210	11	97	7.0	4.2	251
APR 23...	1030	1028	930	8.5	300	11	96	6.8	5.8	237
MAY 29...	1130	1028	930	8.6	430	10	98	4.9	4.5	270
JUN 19...	1145	1028	930	7.0	410	10	100	5.3	4.2	300
JUL 31...	1030	1028	930	1.2	180	9.3	94	6.6	4.6	295
AUG 19...	1000	1028	930	1.4	440	9.8	97	4.6	4.0	365

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV 28...	12.0	22	21	29	27	1.4	1.4	3.6	3.5	7.4
JAN 29...	11.0	15	15	20	19	1.1	1.2	3.4	3.4	17
MAR 13...	9.20	13	13	17	17	1.1	1.1	4.1	4.1	<5.0
APR 23...	10.5	11	11	17	16	.99	1.0	3.2	3.3	8.6
MAY 29...	13.0	12	12	18	18	1.1	1.1	3.1	2.8	13
JUN 19...	14.5	15	15	21	21	1.2	1.2	2.9	2.9	22
JUL 31...	16.0	15	14	20	19	1.1	1.1	3.2	3.0	19
AUG 19...	15.0	20	20	25	24	1.4	1.3	3.4	3.2	26

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	--	190	1700	1700	<40	<40	27	28	<3.0	<3.0
JAN 29...	--	130	<20	850	<40	<40	25	28	<3.0	<3.0
MAR 13...	<5.0	110	160	1000	<80	<40	24	24	<6.0	<3.0
APR 23...	--	99	20	890	<40	<40	24	25	<3.0	<3.0
MAY 29...	--	110	210	1000	<40	<40	24	24	<3.0	<3.0
JUN 19...	--	140	110	1000	<40	<40	26	26	<3.0	<3.0
JUL 31...	--	120	<20	730	<40	<40	26	27	<3.0	<3.0
AUG 19...	--	170	470	910	<40	<40	29	29	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571777 -- Lorberry Cr ab Panther Head Disch nr Lorberry Jct, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	62	60	<3.0	<3.0	3500	4200	<40	<40
JAN 29...	<3.0	<3.0	38	39	<3.0	<3.0	5100	6400	<40	<40
MAR 13...	<6.0	<3.0	42	41	<6.0	<3.0	4100	5800	<80	<40
APR 23...	<3.0	<3.0	36	35	<3.0	<3.0	4100	5700	<40	<40
MAY 29...	<3.0	<3.0	48	47	<3.0	<3.0	3700	5600	<40	<40
JUN 19...	<3.0	<3.0	51	51	<3.0	<3.0	3800	4700	<40	<40
JUL 31...	<3.0	<3.0	39	38	<3.0	<3.0	5500	7200	<40	<40
AUG 19...	<3.0	<3.0	62	60	<3.0	<3.0	4700	5900	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	2200	2100	98	96	<100	<100	240	230
JAN 29...	1700	1700	59	58	<100	<100	130	150
MAR 13...	1600	1600	63	66	<200	<100	170	160
APR 23...	1500	1400	53	56	<100	<100	110	110
MAY 29...	1600	1500	74	71	<100	<100	180	170
JUN 19...	1800	1800	82	77	<100	<100	190	220
JUL 31...	1800	1700	50	53	<100	<100	91	90
AUG 19...	2200	2200	93	89	<100	<100	230	220

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177790 -- Unnamed Trib to Lorberrry Cr nr Lorberrry Jct, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	1230	1028	930	<.01	550	10	86	4.5	5.3	33.0
JAN 29...	1330	1028	930	<.01	450	12	94	5.4	5.5	23.0
MAR 13...	1245	1028	930	1.1	440	12	91	5.4	5.2	21.0
APR 23...	1100	1028	930	3.6	470	11	92	5.0	5.1	19.0
MAY 29...	1200	1028	930	6.1	470	9.8	93	4.6	5.1	20.0
JUN 19...	1215	1028	930	.50	510	9.7	94	5.0	5.2	18.0
JUL 31...	1100	1028	930	.51	220	7.2	75	5.6	5.7	14.0
AUG 19...	1100	1028	930	.25	400	7.1	76	5.6	5.9	16.0

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV 28...	8.80	1.9	1.6	1.0	.84	.93	1.0	1.1	1.0	--
JAN 29...	3.40	1.4	1.4	.68	.7	.51	.5	.90	.9	--
MAR 13...	3.60	1.2	1.1	.67	.6	.43	.5	.91	.8	--
APR 23...	8.90	.95	.96	.560	.53	.28	.3	.7	.90	8.7
MAY 29...	13.5	.98	.9	.49	.5	.22	.2	.71	.7	6.5
JUN 19...	14.0	.86	1.0	.47	.4	.23	.3	.73	.7	9.4
JUL 31...	18.0	1.1	1.0	.36	.4	<.20	.3	.84	.8	18
AUG 19...	18.5	1.0	.9	.40	.4	.33	.50	.95	.9	8.1

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM TOTAL (µG/L AS CD) (01027)
NOV 28...	<5.0	8.2	260	810	<40	<40	21	26	<3.0	<3.0
JAN 29...	<5.0	5.6	100	110	<40	<40	16	19	<3.0	<3.0
MAR 13...	<5.0	5.8	170	200	<80	<40	17	18	<6.0	<3.0
APR 23...	--	4.6	150	180	<40	<40	17	17	<3.0	<3.0
MAY 29...	--	3.8	150	460	<40	<40	14	14	<3.0	<3.0
JUN 19...	--	2.9	180	310	<40	<40	13	14	<3.0	<3.0
JUL 31...	--	1.9	90	170	<40	<40	7.0	7.0	<3.0	<3.0
AUG 19...	--	2.3	60	520	<40	<40	7.0	11	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

0157177790 -- Unnamed Trib to Lorberry Cr nr Lorberry Jct, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	220	900	<40	<40
JAN 29...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	100	100	<40	<40
MAR 13...	<6.0	<3.0	<6.0	<3.0	<6.0	4.0	120	160	<80	<40
APR 23...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	160	210	<40	<40
MAY 29...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	190	310	<40	<40
JUN 19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	330	440	<40	<40
JUL 31...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	240	310	<40	<40
AUG 19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	190	750	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	80	100	<5.0	<5.0	<100	<100	29	18
JAN 29...	20	20	<5.0	<5.0	<100	<100	9.0	32
MAR 13...	50	40	<10	<5.0	<200	<100	31	18
APR 23...	30	30	<5.0	<5.0	<100	<100	17	11
MAY 29...	20	20	<5.0	<5.0	<100	<100	12	54
JUN 19...	30	30	<5.0	<5.0	<100	<100	6.0	55
JUL 31...	40	20	<5.0	<5.0	<100	<100	3.0	10
AUG 19...	40	70	<5.0	<5.0	<100	<100	5.0	10

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571780 -- Lorberry Creek at Lorberry Junction, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	0930	1028	930	4.9	460	10	91	5.1	4.8	358
JAN 29...	1115	1028	930	5.6	390	12	100	5.9	3.8	285
MAR 13...	1030	1028	930	5.3	290	12	98	6.8	5.0	218
APR 23...	0930	1028	930	13	330	11	97	6.6	5.5	189
MAY 29...	1015	1028	930	13	410	10	98	5.2	4.5	227
JUN 19...	0945	1028	930	7.5	360	10	100	6.0	4.8	246
JUL 31...	0930	1028	930	3.5	220	9.1	95	6.3	5.2	293
AUG 19...	0845	1028	930	2.1	320	9.4	99	5.6	4.6	337

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV 28...	10.5	20	20	24	22	1.4	1.4	5.8	6.2	<5.0
JAN 29...	2.80	15	15	19	18	1.1	1.1	4.5	4.4	16
MAR 13...	7.50	10	9.2	10	10	.99	.9	12	5.0	<5.0
APR 23...	9.10	9.6	9.2	13	12	.88	.8	3.2	3.1	11
MAY 29...	13.0	10	9.8	14	14	.92	1.0	2.9	2.8	12
JUN 19...	13.0	13	12	16	15	1.1	1.1	3.4	3.3	11
JUL 31...	17.5	17	16	18	17	1.1	1.1	5.7	5.8	19
AUG 19...	17.0	20	19	22	21	1.3	1.3	5.9	5.8	11

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM TOTAL (µG/L AS CD) (01027)
NOV 28...	--	150	820	1200	<40	<40	25	25	<3.0	<3.0
JAN 29...	--	120	70	680	<40	<40	25	29	<3.0	<3.0
MAR 13...	<5.0	66	80	820	<80	<40	24	23	<6.0	<3.0
APR 23...	--	75	40	700	<40	<40	23	23	<3.0	<3.0
MAY 29...	6.3	89	210	870	<40	<40	22	23	<3.0	<3.0
JUN 19...	--	100	40	810	<40	<40	23	24	<3.0	<3.0
JUL 31...	--	110	50	420	<40	<40	23	23	<3.0	<3.0
AUG 19...	--	150	180	720	<40	<40	26	27	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571780 -- Lorberry Creek at Lorberry Junction, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	43	39	<3.0	<3.0	1600	1900	<40	<40
JAN 29...	<3.0	<3.0	37	37	<3.0	<3.0	3300	4400	<40	<40
MAR 13...	<6.0	<3.0	25	24	<6.0	3.0	2000	4700	<80	<40
APR 23...	<3.0	<3.0	28	26	<3.0	<3.0	2300	3500	<40	<40
MAY 29...	<3.0	<3.0	37	35	<3.0	<3.0	2300	3800	<40	<40
JUN 19...	<3.0	<3.0	38	37	<3.0	<3.0	2300	4000	<40	<40
JUL 31...	<3.0	<3.0	28	26	<3.0	<3.0	2100	3300	<40	<40
AUG 19...	<3.0	<3.0	49	49	<3.0	<3.0	2400	4000	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	1600	1500	74	69	<100	<100	190	170
JAN 29...	1500	1500	55	56	<100	<100	150	190
MAR 13...	890	920	36	40	<200	<100	110	110
APR 23...	1100	1000	45	40	<100	<100	100	91
MAY 29...	1200	1200	56	56	<100	<100	140	150
JUN 19...	1300	1300	61	57	<100	<100	140	180
JUL 31...	1200	1200	48	45	<100	<100	80	82
AUG 19...	1800	1700	81	78	<100	<100	200	190

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

403626076253001 -- Orchard Mine, Site E3-S0, near Joliett, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD) (00400)	PH WATER WHOLE LAB (STANDARD) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
MAY 06...	1500	1028	9813	.05	660	5.2	47	3.5	3.5	306
Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	ACIDITY (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	
MAY 06...	11.0	19	19	64	.00	2900	4100	2600	430	

403626076253026 -- Limestone Drain 2, Effluent (80 ft)

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD) (00400)	PH WATER WHOLE LAB (STANDARD) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
MAY 06...	1445	1028	9813	.05	520	5.8	53	4.5	4.5	252
Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	ACIDITY (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	MANGANESE, DIS-SOLVED (µG/L AS MN) (01056)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	
MAY 06...	11.0	17	12	58	1.0	1600	2500	1700	180	

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571758 -- Lower Rausch Creek near Lorberry Junction, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	1015	1028	930	3.6	230	10	93	6.8	7.5	545
JAN 29...	1200	1028	930	4.5	250	12	100	7.2	7.2	358
MAR 13...	1100	1028	930	11	260	12	96	7.1	6.5	351
APR 23...	1000	1028	930	8.6	280	11	97	6.9	6.8	330
MAY 29...	1100	1028	930	5.8	220	10	97	6.6	6.7	397
JUN 19...	1015	1028	930	3.9	210	11	101	7.0	7.1	467
JUL 31...	1000	1028	930	1.8	160	9.7	99	7.2	6.7	499
AUG 19...	0930	1028	930	3.2	290	10	99	7.2	7.5	476

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV 28...	11.0	42	39	24	22	2.1	2.0	29	29	--
JAN 29...	9.00	25	24	16	15	1.3	1.3	18	18	--
MAR 13...	7.40	25	26	12	13	1.5	1.9	35	35	--
APR 23...	8.70	25	24	16	15	1.3	1.4	13	12	9.3
MAY 29...	13.5	30	29	20	19	1.6	1.6	12	11	14
JUN 19...	13.5	33	33	20	19	2.1	2.2	30	29	--
JUL 31...	16.5	34	33	24	23	1.6	1.6	24	24	--
AUG 19...	17.0	31	30	21	20	1.6	1.7	30	29	--

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	<5.0	190	<20	300	<40	<40	23	24	<3.0	<3.0
JAN 29...	18	110	<20	210	<40	<40	22	27	<3.0	<3.0
MAR 13...	14	88	60	1900	<80	<40	35	48	<6.0	<3.0
APR 23...	--	120	<20	450	<40	<40	22	23	<3.0	<3.0
MAY 29...	--	150	<20	920	<40	<40	21	23	<3.0	<3.0
JUN 19...	23	170	<20	920	<40	<40	22	26	<3.0	<3.0
JUL 31...	16	180	30	660	<40	<40	22	24	<3.0	<3.0
AUG 19...	18	170	<20	450	<40	<40	20	22	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571758 -- Lower Rausch Creek near Lorberry Junction, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	20	20	<3.0	<3.0	10	2000	<40	<40
JAN 29...	<3.0	<3.0	18	18	<3.0	<3.0	610	1700	<40	<40
MAR 13...	<6.0	4.0	19	19	<6.0	<3.0	1300	4400	<80	<40
APR 23...	<3.0	<3.0	24	24	<3.0	<3.0	2300	3100	<40	<40
MAY 29...	<3.0	<3.0	34	34	<3.0	<3.0	2100	3900	<40	<40
JUN 19...	<3.0	<3.0	25	27	<3.0	<3.0	270	3500	<40	<40
JUL 31...	4.0	3.0	31	33	<3.0	<3.0	120	4400	<40	<40
AUG 19...	<3.0	3.0	24	26	<3.0	<3.0	10	3200	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	1200	1200	33	34	<100	<100	28	37
JAN 29...	1200	1100	30	29	<100	<100	32	130
MAR 13...	870	910	31	33	<200	<100	67	72
APR 23...	1200	1100	42	41	<100	<100	54	61
MAY 29...	1500	1500	54	52	<100	<100	73	90
JUN 19...	1200	1200	38	42	<100	<100	26	84
JUL 31...	1500	1600	51	54	<100	<100	28	67
AUG 19...	1300	1300	38	41	<100	<100	18	47

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571760 -- Lower Rausch Creek at Lorberry Junction, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	0945	1028	930	1.9	350	10	92	6.5	7.5	480
JAN 29...	1130	1028	930	2.5	370	12	100	6.8	7.5	356
MAR 13...	1045	1028	930	3.2	320	12	101	7.0	6.4	357
APR 23...	0945	1028	930	5.6	320	12	98	6.8	6.8	324
MAY 29...	1030	1028	930	5.4	260	10	98	6.4	6.8	392
JUN 19...	1000	1028	930	4.3	290	10	102	6.8	6.8	413
JUL 31...	0945	1028	930	1.8	150	7.9	92	7.2	6.8	479
AUG 19...	0915	1028	930	2.0	290	8.2	98	7.0	7.4	473

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV 28...	9.80	39	38	22	21	2.0	2.0	20	20	--
JAN 29...	6.20	23	23	15	14	1.4	1.4	21	21	--
MAR 13...	6.30	30	32	11	12	1.7	2.1	45	45	--
APR 23...	8.20	24	23	15	15	1.3	1.4	13	12	11
MAY 29...	14.5	31	30	20	19	1.6	1.6	11	11	--
JUN 19...	15.0	32	32	20	19	1.8	1.8	17	17	--
JUL 31...	23.0	36	35	24	23	1.6	1.5	20	19	--
AUG 19...	24.0	32	30	21	20	1.5	1.6	26	26	--

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM TOTAL (µG/L AS CD) (01027)
NOV 28...	<5.0	170	<20	70	<40	<40	22	22	<3.0	<3.0
JAN 29...	23	110	<20	90	<40	<40	19	23	<3.0	<3.0
MAR 13...	21	90	40	2200	<80	<40	32	48	<6.0	<3.0
APR 23...	--	110	<20	290	<40	<40	22	23	<3.0	<3.0
MAY 29...	9.9	150	<20	600	<40	<40	22	23	<3.0	<3.0
JUN 19...	15	150	<20	560	<40	<40	21	23	<3.0	<3.0
JUL 31...	19	180	60	140	<40	<40	20	21	<3.0	<3.0
AUG 19...	19	170	<20	60	<40	<40	18	19	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571760 -- Lower Rausch Creek at Lorberry Junction, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	16	15	<3.0	<3.0	<10	530	<40	<40
JAN 29...	<3.0	<3.0	15	14	<3.0	<3.0	70	780	<40	<40
MAR 13...	<6.0	5.0	14	16	<6.0	<3.0	130	3300	<80	<40
APR 23...	<3.0	<3.0	23	23	<3.0	<3.0	1500	2400	<40	<40
MAY 29...	<3.0	<3.0	32	32	<3.0	<3.0	1200	2800	<40	<40
JUN 19...	<3.0	<3.0	26	27	<3.0	<3.0	50	2200	<40	<40
JUL 31...	6.0	4.0	12	12	<3.0	<3.0	10	530	<40	<40
AUG 19...	3.0	67	<3.0	5.0	<3.0	4.0	20	710	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	1100	1000	28	29	<100	<100	21	25
JAN 29...	940	910	26	25	<100	<100	27	73
MAR 13...	760	790	22	26	<200	<100	27	42
APR 23...	1100	1100	38	37	<100	<100	49	52
MAY 29...	1500	1400	51	50	<100	<100	75	80
JUN 19...	1300	1300	45	43	<100	<100	31	59
JUL 31...	820	820	27	30	<100	<100	6.0	16
AUG 19...	350	390	19	71	<100	<100	3.0	11

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571798 -- Swatara Creek at Lorberry Junction, PA

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

Date	Time	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (µS/CM) (00095)
NOV 28...	0915	1028	930	--	380	11	93	6.1	6.7	217
JAN 29...	1100	1028	930	40	360	14	100	6.8	6.9	190
MAR 13...	1015	1028	930	24	370	13	99	6.8	6.2	187
APR 23...	0915	1028	930	62	380	11	97	6.7	7.0	157
MAY 29...	1000	1028	930	52	360	9.9	98	6.4	6.9	197
JUN 19...	0930	1028	930	28	370	10	100	6.8	6.8	207
JUL 31...	0915	1028	930	9.3	180	8.8	96	6.9	6.7	304
AUG 19...	0830	1028	930	9.6	280	9.2	100	6.9	7.2	292

Date	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV 28...	9.30	16	15	9.6	9.0	1.7	1.7	6.9	6.8	--
JAN 29...	3.70	13	13	8.0	7.8	1.2	1.1	7.4	7.2	--
MAR 13...	4.90	8.8	9.0	5.1	5.2	1.3	1.4	8.7	8.7	--
APR 23...	8.10	11	10	7.8	7.4	.98	1.0	5.3	5.2	5.7
MAY 29...	15.0	13	12	9.8	9.2	.98	1.0	5.3	5.2	--
JUN 19...	14.5	15	14	11	10	1.1	1.2	5.4	5.2	--
JUL 31...	19.5	24	23	16	15	1.5	1.5	7.6	7.4	--
AUG 19...	20.0	23	23	16	16	1.6	1.5	8.0	7.9	--

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUMINUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOVERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV 28...	7.4	69	30	120	<40	<40	22	23	<3.0	<3.0
JAN 29...	6.4	56	<20	110	<40	<40	21	26	<3.0	<3.0
MAR 13...	6.1	36	110	1600	<80	<40	24	29	<6.0	<3.0
APR 23...	--	51	<20	220	<40	<40	22	23	<3.0	<3.0
MAY 29...	10	64	<20	260	<40	<40	22	23	<3.0	<3.0
JUN 19...	7.1	71	<20	450	<40	<40	20	22	<3.0	<3.0
JUL 31...	12	100	<20	100	<40	<40	17	18	<3.0	<3.0
AUG 19...	11	100	<20	50	<40	<40	18	18	<3.0	<3.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued**

01571798 -- Swatara Creek at Lorberry Junction, PA--Continued

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

Date	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)
NOV 28...	<3.0	<3.0	6.0	6.0	<3.0	<3.0	30	180	<40	<40
JAN 29...	<3.0	<3.0	6.0	6.0	<3.0	<3.0	40	240	<40	<40
MAR 13...	6.0	5.0	10	9.0	7.0	4.0	160	3800	<80	<40
APR 23...	<3.0	<3.0	10	9.0	<3.0	<3.0	100	520	<40	<40
MAY 29...	<3.0	<3.0	8.0	9.0	<3.0	<3.0	80	720	<40	<40
JUN 19...	<3.0	<3.0	7.0	8.0	<3.0	<3.0	100	960	<40	<40
JUL 31...	<3.0	4.0	<3.0	<3.0	<3.0	<3.0	30	190	<40	<40
AUG 19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	20	180	<40	<40

Date	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 28...	510	510	18	19	<100	<100	43	42
JAN 29...	490	490	13	12	<100	<100	34	57
MAR 13...	370	420	15	17	<200	<100	62	50
APR 23...	440	450	20	20	<100	<100	37	42
MAY 29...	450	460	21	21	<100	<100	48	44
JUN 19...	380	410	22	18	<100	<100	26	100
JUL 31...	30	60	<5.0	6.0	<100	<100	16	10
AUG 19...	20	50	<5.0	<5.0	<100	<100	8.0	12