

**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 mi<sup>2</sup> 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. 10). 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.

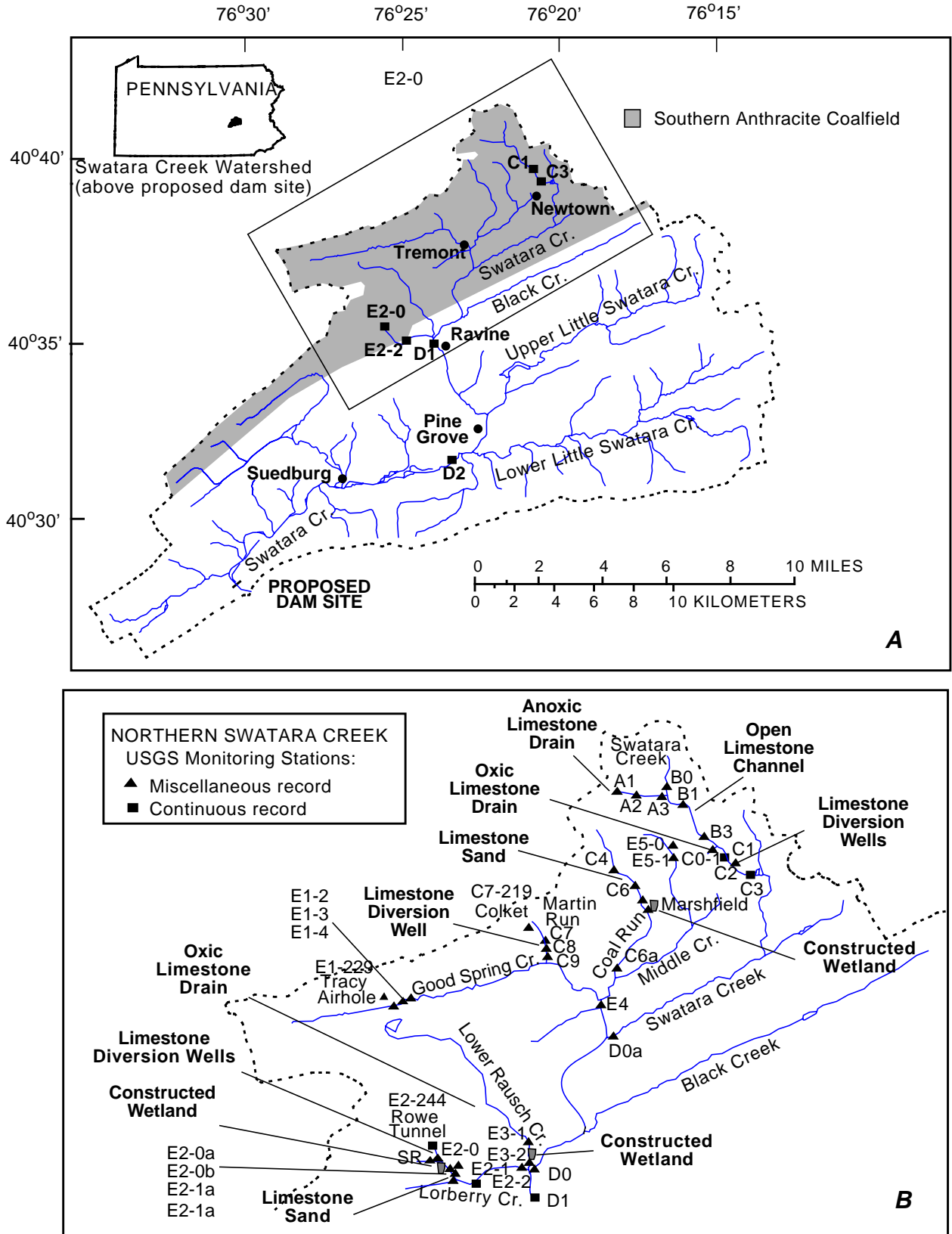
Limestone sand dosing and open limestone channels are the simplest treatment systems where limestone is added directly to the stream channel semiannually or less frequently. Limestone sand, which can dissolve rapidly because of its small size (<1/8 inch), was dumped into Coal Run (14 tons) between stations C4 and C6 on September 4, 1996, and into Lorberry Creek (150 tons) below station E2 on February 13-14, 1997 (fig. 10). An open limestone channel was constructed within a 110-ft long segment of Swatara Creek at station B2 (fig. 10) 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. 10).

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. 10); 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.

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).

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 SWATARA CREEK PROJECT--Continued



**Figure 10.** 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
B1	0157154980	SWATARA CREEK, BELOW NORTHWEST TRIBUTARY, SITE B1, 50 FT ABOVE OLC, NEAR NEWTOWN, PA	40°40'22"	76°21'41"	1.75
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
E5-0	403853076222301	MIDDLE CREEK MINE DISCHARGE, SITE E5-0, NEAR NEWTOWN, PA	40°38'52"	76°22'19"	n.a.
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
C4	0157158010	COAL RUN, SITE C4, NEAR TREMONT, PA	40°38'33"	76°22'47"	.26
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
E2-0a	01571772	LORBERRY CREEK BELOW ROWE DRAINAGE TUNNEL NEAR JOLIETT, PA	40°35'38"	76°26'23"	
E2-0b	01571773	LORBERRY CREEK, LDW OUTFLOW, AT NEWTOWN, 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
SH	403521076260601	SHADLE MINE SHAFT AT LORBERRY, PA	40°35'21"	76°26'06"	n.a.
E2-2a	0157177680	SHADLE MINE DRAINAGE, 250 FT BELOW SHAFT, NEAR LORBERRY, PA	40°35'15"	76°25'59"	

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

LOCAL ID	STATION NUMBER	STATION NAME	LATITUDE	LONGITUDE	DRAINAGE AREA
	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	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**

**0157154970 -- NW TRIB TO SWATARA CR, SITE A2, NEAR NEWTOWN, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 15...	0915	9813	1028	.02	191	8.3	75	6.4	6.8	451
JAN 09...	0945	9813	1028	.25	363	3.4	30	6.4	6.5	417
MAR 14...	1645	9813	1028	1.0	267	12.2	98	6.1	6.5	242
MAY 22...	1515	930	1028	.14	282	2.6	21	6.6	6.7	393
JUL 17...	1115	930	1028	.00	251	4.6	41	6.2	6.7	396
SEP 26...	1700	9813	1028	.19	344	1.5	14	6.0	6.2	341

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 15...	10.9	60.1	60.2	9.1	9.2	2.3	2.3	15.5	15.5	<5
JAN 09...	9.9	37.0	37.9	9.7	9.7	--	--	17.9	18.2	<5
MAR 14...	5.9	31.0	33.6	7.7	8.5	--	--	13.7	14.2	<5
MAY 22...	8.7	35.0	43.0	7.9	8.4	1.7	1.7	19.0	17.0	--
JUL 17...	10.0	39.0	38.0	8.4	8.1	1.9	1.7	18.0	18.0	--
SEP 26...	11.5	27.1	24.9	8.4	8.7	--	--	16.6	16.2	16

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV 15...	120	19.0	78.3	18	<200	<200	--	--	--	--
JAN 09...	80	25.2	90.2	4	<200	<200	--	--	--	--
MAR 14...	68	18.9	73.4	24	<200	400	--	--	--	--
MAY 22...	62	--	61.0	--	90	110	<40	<40	46.0	43.0
JUL 17...	65	--	72.0	--	80	80	<40	<40	44.0	44.0
SEP 26...	42	21.9	73.7	8	260	519	--	--	--	--

**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 2000 TO SEPTEMBER 2001

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 15...	--	--	--	--	--	--	--	--	9960
JAN 09...	--	--	--	--	--	--	--	--	16800	17300
MAR 14...	--	--	--	--	--	--	--	--	11300	15800
MAY 22...	<3.0	<3.0	<3.0	<3	67	78	6.0	<3.0	12000	13000
JUL 17...	<3.0	<3.0	<3.0	<3	75	72	<3.0	<3.0	12000	12000
SEP 26...	--	--	--	--	--	--	--	--	9430	10600

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 15...	--	--	1540	1580	--	--	--	--	--
JAN 09...	--	--	1630	1640	--	--	--	--	--	--
MAR 14...	--	--	1370	1520	--	--	--	--	--	--
MAY 22...	<40	<40	1400	1600	71	87	<100	<100	80	97
JUL 17...	<40	<40	1400	1400	80	78	<100	<100	150	270
SEP 26...	--	--	1570	1650	--	--	--	--	--	--

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE NUMBER (00028)	AGENCY COL- LECTING SAMPLE NUMBER (00027)	DIS- CHARGE, INST- CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (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 15...	1015	9813	1028	.98	374	12.6	100	5.6	6.5	291
JAN 09...	1030	9813	1028	.75	384	12.5	94	5.8	6.5	338
MAR 14...	1530	9813	1028	1.2	436	12.5	94	5.8	6.5	338
MAY 22...	1400	930	1028	.52	322	9.1	85	6.6	7.0	188
JUL 17...	1000	930	1028	.32	217	10.1	99	6.7	7.0	301
SEP 27...	0815	9813	1028	.38	289	10.8	98	6.9	6.6	306

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 AS CAC03) (70508)
NOV 15...	5.7	24.1	24.6	8.2	8.4	1.8	1.8	15.8	16.0	<5
JAN 09...	3.4	24.3	25.9	8.4	8.4	--	--	18.0	18.9	<5
MAR 14...	5.0	15.4	15.4	5.6	5.4	--	--	13.9	13.8	<5
MAY 22...	11.6	15.0	17.0	5.9	6.1	1.9	2.0	15.0	15.0	--
JUL 17...	12.7	23.0	23.0	7.8	7.6	1.6	1.6	17.0	17.0	--
SEP 27...	10.7	24.7	24.6	7.2	7.1	--	--	15.2	15.2	<5

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV 15...	20	21.7	77.8	12	<200	244	--	--	--	--
JAN 09...	24	27.6	84.6	10	<200	348	--	--	--	--
MAR 14...	15	21.4	51.3	12	<200	960	--	--	--	--
MAY 22...	7	--	53.0	--	80	310	<40	<40	39.0	40.0
JUL 17...	21	--	71.0	--	<20	170	<40	<40	38.0	38.0
SEP 27...	28	19.9	71.8	8	<200	244	--	--	--	--



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

**0157154972 -- NW TRIB TO SWATARA CR, SITE A3, NEAR NEWTOWN, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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 15...	--	--	--	--	--	--	--	--	2390
JAN 09...	--	--	--	--	--	--	--	--	7670	7710
MAR 14...	--	--	--	--	--	--	--	--	3960	5590
MAY 22...	<3.0	<3.0	<3.0	<3	39.0	42	<3.0	<3.0	2600	4500
JUL 17...	<3.0	30.0	<3.0	<3	58.0	59	<3.0	<3.0	1700	5600
SEP 27...	--	--	--	--	--	--	--	--	1980	4400

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 15...	--	--	1080	1110	--	--	--	--	--
JAN 09...	--	--	1250	1260	--	--	--	--	--	--
MAR 14...	--	--	1000	974	--	--	--	--	--	--
MAY 22...	<40	<40	830	880	46.0	50	<100	<100	57	71
JUL 17...	<40	<40	1100	1100	63.0	68	<100	<100	65	120
SEP 27...	--	--	1150	1140	--	--	--	--	--	--

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD ARD UNITS) (00400)	PH WATER WHOLE LAB ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
15...	1000	9813	1028	.22	464	12.2	98	4.5	4.5	82
JAN										
09...	1015	9813	1028	1.0	437	13.4	95	5.5	4.5	73
MAR										
14...	1515	9813	1028	3.5	493	12.3	95	4.0	4.5	121
MAY										
22...	1345	930	1028	1.9	522	9.1	84	4.2	4.4	78
JUL										
17...	1015	930	1028	.14	543	7.8	80	4.2	4.3	109
SEP										
27...	0845	9813	1028	.16	524	10.6	100	4.1	4.4	125

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										
15...	6.0	2.1	1.2	1.4	1.2	<1.0	<1.0	6.2	6.0	12
JAN										
09...	1.3	1.1	1.0	1.1	1.1	--	--	4.3	4.4	11
MAR										
14...	4.4	1.4	1.4	1.1	1.2	--	--	9.0	9.3	11
MAY										
22...	11.5	1.2	1.1	1.1	1.1	.5	.5	6.1	6.2	<5.0
JUL										
17...	16.1	1.3	1.1	1.2	1.1	.5	.5	7.4	7.2	<5.0
SEP										
27...	11.9	1.1	1.1	1.0	0.9	--	--	8.9	8.9	50

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV										
15...	.0	10.3	14.8	6	828	869	--	--	--	--
JAN										
09...	.0	7.5	16.3	<2	826	878	--	--	--	--
MAR										
14...	.0	17.1	16.5	<2	891	899	--	--	--	--
MAY										
22...	<5	--	10.0	--	790	840	<40	<40	42	42
JUL										
17...	--	--	11.0	--	720	750	<40	<40	41	41
SEP										
27...	.0	16.9	10.9	<2	718	729	--	--	--	--

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

**0157154960 -- SWATARA CREEK, AB NW TRIB, SITE B0, NR NEWTOWN, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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 15...	--	--	--	--	--	--	--	--	340
JAN 09...	--	--	--	--	--	--	--	--	240	200
MAR 14...	--	--	--	--	--	--	--	--	160	190
MAY 22...	<3.0	<3.0	<3.0	<3	9.0	9	6.0	<3.0	150	220
JUL 17...	5.0	38.0	<3.0	<3	10.0	9	3.0	6.0	140	220
SEP 27...	--	--	--	--	--	--	--	--	240	300

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 15...	--	--	252	223	--	--	--	--	--
JAN 09...	--	--	178	179	--	--	--	--	--	--
MAR 14...	--	--	203	213	--	--	--	--	--	--
MAY 22...	<40	<40	200	200	10.0	7	<100	<100	41	38
JUL 17...	<40	<40	240	230	7.0	7	<100	<100	46	51
SEP 27...	--	--	219	219	--	--	--	--	--	--

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
15...	0945	9813	1028	1.2	320	12.4	99	6.4	5.9	121
JAN										
09...	1000	9813	1028	1.8	364	14.8	105	6.3	6.2	148
MAR										
14...	1500	9813	1028	4.8	439	12.3	96	5.0	5.6	141
MAY										
22...	1345	930	1028	2.5	496	10.7	100	5.2	5.2	105
JUL										
17...	0945	930	1028	2.5	296	8.9	89	6.3	7.0	210
SEP										
27...	0730	9813	1028	1.0	361	10.6	96	6.8	6.4	204

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 CAC03) (70508)
NOV										
15...	5.5	8.0	7.2	3.5	3.0	1.0	<1.0	8.4	8.1	7.8
JAN										
09...	1.4	9.4	8.8	3.8	3.7	--	--	8.9	8.9	2.8
MAR										
14...	4.8	5.6	5.5	2.6	2.4	--	--	10.6	10.6	7.8
MAY										
22...	12.1	4.3	5.2	2.2	2.2	0.8	.8	8.0	7.5	<5.0
JUL										
17...	15.2	14.0	14.0	5.1	4.9	1.1	1.1	13.0	12.0	--
SEP										
27...	11.1	12.4	12.4	4.5	4.0	--	--	12.2	12.3	44

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV										
15...	3	13.0	28.3	4	<200	617	--	--	--	--
JAN										
09...	7	13.6	35.6	<2	<200	794	--	--	--	--
MAR										
14...	3	18.2	22.7	<2	<200	1040	--	--	--	--
MAY										
22...	<5	--	20.0	--	410	1000	<40	<40	41	40
JUL										
17...	10	--	46.0	--	30	550	<40	<40	39	41
SEP										
27...	10	18.5	40.5	8	204	508	--	--	--	--

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

**0157154984 -- SWATARA CR, BL NW TRIB, SITE B3, NEAR NEWTOWN, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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 15...	--	--	--	--	--	--	--	--	610
JAN 09...	--	--	--	--	--	--	--	--	1820	2610
MAR 14...	--	--	--	--	--	--	--	--	1080	1770
MAY 22...	<3.0	<3.0	<3.0	<3	15.0	18	7.0	4.0	560	2300
JUL 17...	<3.0	18.0	<3.0	<3	35.0	37	<3.0	4.0	310	3200
SEP 27...	--	--	--	--	--	--	--	--	820	2190

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 15...	--	--	471	426	--	--	--	--	--
JAN 09...	--	--	565	551	--	--	--	--	--	--
MAR 14...	--	--	427	415	--	--	--	--	--	--
MAY 22...	<40	<40	330	370	19.0	23	<100	<100	47	61
JUL 17...	<40	<40	700	690	41.0	40	<100	<100	38	69
SEP 27...	--	--	711	653	--	--	--	--	--	--

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

**403955076211801 -- HEGINS MINE DISCHARGE SITE C0-1, AT NEWTOWN, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
15...	1045	9813	1028	.19	545	9.3	82	3.5	3.6	575
JAN										
09...	1115	9813	1028	.01	490	10.2	80	3.8	3.7	482
MAR										
14...	1430	9813	1028	.19	647	12.0	95	3.5	3.6	506
MAY										
22...	1245	930	1028	2.4	593	9.4	83	3.4	3.6	497
JUL										
17...	0900	930	1028	.13	541	11.4	103	4.7	3.6	456
SEP										
26...	1615	9813	1028	.02	642	7.6	67	3.5	3.6	556

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 CAC03) (70508)
NOV										
15...	9.7	10.6	10.6	45.5	44.2	1.7	1.7	5.7	5.7	54
JAN										
09...	9.2	8.2	8.2	35.4	35.5	--	--	5.5	5.4	48
MAR										
14...	9.7	8.8	8.6	33.3	33.2	--	--	6.1	6.0	48
MAY										
22...	9.9	9.1	8.4	31.0	31.0	1.6	1.6	6.1	6.6	28
JUL										
17...	10.7	9.8	9.4	38.0	36.0	1.6	1.6	5.6	5.5	31
SEP										
26...	9.8	10.2	10.2	40.3	39.7	--	--	7.0	7.1	103

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV										
15...	.0	4.5	301	6	6270	6220	--	--	--	--
JAN										
09...	.0	6.0	239	4	4340	4460	--	--	--	--
MAR										
14...	.0	6.3	230	<2	4990	4940	--	--	--	--
MAY										
22...	--	--	190	--	4700	4800	<40	<40	19	19
JUL										
17...	--	--	220	--	5100	5000	<40	<40	19	18
SEP										
26...	.0	5.3	226	<2	5790	5890	--	--	--	--

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

**403955076211801 -- HEGINS MINE DISCHARGE SITE C0-1, AT NEWTOWN, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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 15...	--	--	--	--	--	--	--	--	270
JAN 09...	--	--	--	--	--	--	--	--	340	220
MAR 14...	--	--	--	--	--	--	--	--	240	240
MAY 22...	<3.0	<3.0	<3.0	28	88.0	84	20.0	18.0	50	40
JUL 17...	<3.0	46.0	<3.0	<3	94.0	91	11.0	11.0	<10	<10
SEP 26...	--	--	--	--	--	--	--	--	250	240

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 15...	--	--	2210	2200	--	--	--	--	--
JAN 09...	--	--	1460	1500	--	--	--	--	--	--
MAR 14...	--	--	1580	1560	--	--	--	--	--	--
MAY 22...	<40	<40	1600	1500	140	130	<100	<100	380	360
JUL 17...	<40	<40	1800	1800	150	150	<100	<100	400	400
SEP 26...	--	--	2140	2160	--	--	--	--	--	--

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

**403955076211802 -- HEGINS MINE DISCH, TREATED, AT NEWTOWN, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD ARD (STAND- ARDS) (00400)	PH WATER WHOLE LAB (STAND- ARDS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
15...	1030	9813	1028	.19	465	11.7	101	4.9	4.7	483
JAN										
09...	1100	9813	1028	.01	415	10.3	88	5.2	4.7	414
MAR										
14...	1415	--	--	.19	--	12.0	--	4.6	4.6	421
MAY										
22...	1215	930	1028	2.4	513	9.7	87	4.6	4.7	408
JUL										
17...	0915	930	1028	.13	617	10.3	92	3.5	4.6	533
SEP										
26...	1600	9813	1028	.02	533	10.2	91	4.9	4.6	459

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										
15...	8.8	21.1	21.7	44.0	46.0	1.9	1.8	5.7	5.7	28
JAN										
09...	8.4	16.4	16.8	33.1	34.0	--	--	5.2	5.3	24
MAR										
14...	9.4	15.3	15.4	33.4	33.5	--	--	6.1	6.0	32
MAY										
22...	10.2	16.0	18.0	29.0	31.0	1.5	1.5	6.1	6.1	9.1
JUL										
17...	10.1	18.0	17.0	37.0	36.0	1.6	1.6	5.5	5.4	13
SEP										
26...	10.1	19.6	20.0	37.6	38.6	--	--	6.9	7.6	61

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV										
15...	2	4.4	251	20	4360	5570	--	--	--	--
JAN										
09...	2	5.0	198	10	3440	3450	--	--	--	--
MAR										
14...	0	6.1	200	<2	4500	4560	--	--	--	--
MAY										
22...	--	--	180	--	3900	4000	<40	<40	19	19
JUL										
17...	--	--	210	--	4300	4200	<40	<40	19	19
SEP										
26...	1	5.1	217	<2	4040	4130	--	--	--	--



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

**403955076211802 -- HEGINS MINE DISCH, TREATED, AT NEWTOWN, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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 15...	--	--	--	--	--	--	--	--	160
JAN 09...	--	--	--	--	--	--	--	--	100	110
MAR 14...	--	--	--	--	--	--	--	--	110	170
MAY 22...	<3.0	<3.0	<3.0	<3	77.0	82	21.0	14.0	<10	<10
JUL 17...	<3.0	24.0	<3.0	<3	86.0	84	8.0	10.0	<10	<10
SEP 26...	--	--	--	--	--	--	--	--	60	70

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 15...	--	--	1940	1990	--	--	--	--	--
JAN 09...	--	--	1340	1340	--	--	--	--	--	--
MAR 14...	--	--	1500	1500	--	--	--	--	--	--
MAY 22...	<40	<40	1400	1500	130	140	<100	<100	330	370
JUL 17...	<40	<40	1700	1600	140	140	<100	<100	380	370
SEP 26...	--	--	1840	1840	--	--	--	--	--	--

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED 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 15...	1130	9813	1028	.57	430	11.6	93	5.4	6.1	199
JAN 09...	1200	9813	1028	.90	422	13.3	94	5.1	6.0	180
MAR 14...	1300	9813	1028	1.0	474	99.6	--	5.5	5.4	140
JUL 17...	0815	930	1028	.53	400	9.7	97	6.0	6.5	244
SEP 26...	1515	9813	1028	.76	292	9.8	92	7.3	7.1	213

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 15...	5.8	12.4	13.8	10.3	10.3	1.1	1.0	7.0	6.9	2.6
JAN 09...	1.1	10.3	10.2	7.3	7.3	--	--	7.5	7.5	6.0
MAR 14...	5.8	6.7	6.8	4.6	4.7	--	--	8.3	8.4	7.6
JUL 17...	15.3	15.0	15.0	11.0	10.0	1.1	1.1	9.9	9.8	--
SEP 26...	12.3	14.7	23.9	5.3	5.4	--	--	9.7	9.5	<5

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	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)	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)
NOV 15...	4	9.8	69.1	16	303	681	--	--	--	--
JAN 09...	4	11.0	53.8	<2	<200	727	--	--	--	--
MAR 14...	3	13.8	34.3	<2	287	876	--	--	--	--
JUL 17...	<5	--	76.0	--	50	740	<40	<40	36	36
SEP 26...	12	15.2	52.9	40	<200	915	--	--	--	--

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

**0157155012 -- SWATARA CREEK, SITE C2, AT NEWTOWN, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	CADMIUM	CHRO-	CHRO-	COBALT,	COBALT,	COPPER,	COPPER,	IRON,	IRON,	
	WATER DIS- SOLVED (µG/L AS CD) (01025)	MIUM, UNFLTRD TOTAL (µG/L AS CD) (01027)	MIUM, DIS- SOLVED (µG/L AS CR) (01030)	MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	DIS- SOLVED (µG/L AS CO) (01035)	DIS- RECOV- ERABLE (µG/L AS CO) (01037)	DIS- SOLVED (µG/L AS CU) (01040)	DIS- RECOV- ERABLE (µG/L AS CU) (01042)	DIS- SOLVED (µG/L AS FE) (01046)	DIS- RECOV- ERABLE (µG/L AS FE) (01045)
NOV 15...	--	--	--	--	--	--	--	210	350	
JAN 09...	--	--	--	--	--	--	--	610	1080	
MAR 14...	--	--	--	--	--	--	--	640	900	
JUL 17...	<3.00	26.0	<3.0	<3	21	21	<3.0	<3.0	90	610
SEP 26...	--	--	--	--	--	--	--	290	1170	

DATE	LEAD,	LEAD,	MANGA-	MANGA-	NICKEL,	NICKEL,	SELE-	SELE-	ZINC,	ZINC,
	DIS- SOLVED (µG/L AS PB) (01049)	TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	NESE, DIS- SOLVED (µG/L AS MN) (01056)	NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	DIS- SOLVED (µG/L AS NI) (01065)	TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	DIS- SOLVED (µG/L AS SE) (01145)	DIS- TOTAL (µG/L AS SE) (01147)	DIS- SOLVED (µG/L AS ZN) (01090)	TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 15...	--	--	460	466	--	--	--	--	--	--
JAN 09...	--	--	506	500	--	--	--	--	--	--
MAR 14...	--	--	388	395	--	--	--	--	--	--
JUL 17...	<40	<40	490	490	38	40	<100	<100	69	99
SEP 26...	--	--	546	545	--	--	--	--	--	--

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV	16...	9813	1028	.23	368	8.9	79	5.9	5.8	267
JAN	08...	9813	1028	2.2	411	9.8	83	5.3	5.1	268
MAR	20...	9813	1028	16	438	10.9	92	5.5	5.1	250
JUN	05...	9813	1028	6.3	460	7.5	68	5.0	4.9	273
JUL	17...	9813	1028	1.7	490	7.8	75	5.0	4.7	306
SEP	25...	9813	1028	.91	397	8.4	79	5.7	5.1	330

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	16...	10.2	15.6	16.0	19.1	19.6	<1.0	1.1	8.1	8.5	1.6
JAN	08...	8.0	14.3	14.1	18.8	18.8	--	--	8.1	7.9	9.2
MAR	20...	7.9	10.6	10.7	12.0	12.2	--	--	12.0	12.8	7.8
JUN	05...	11.2	11.9	11.9	16.5	16.7	--	--	10.1	10.6	8.4
JUL	17...	12.3	19.7	19.4	24.6	24.3	--	--	11.8	11.7	52
SEP	25...	12.7	19.8	20.2	19.0	19.3	--	--	7.4	7.3	44

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	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	16...	7	12.7	97.9	10	<200	555	1540	2850	1310	1360
JAN	08...	3	9.9	102	<2	856	1240	2350	3520	1240	1210
MAR	20...	3	18.4	69.7	<2	666	928	1980	2920	866	870
JUN	05...	3	16.4	92.1	14	665	969	790	2150	991	1050
JUL	17...	2	14.5	104	<2	1090	1420	1500	3280	1470	1420
SEP	25...	4	12.0	113	14	326	1260	4070	6220	1450	1450

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD ARD UNITS) (00400)	PH WATER WHOLE LAB ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 16...	1100	9813	1028	1.4	264	10.6	91	6.8	6.5	272
JAN 08...	1400	9813	1028	4.9	339	12.0	100	6.4	6.7	238
MAR 20...	1030	9813	1028	3.6	409	11.8	94	6.3	6.2	203
JUN 05...	1030	9813	1028	3.6	354	9.9	88	6.9	6.4	255
JUL 17...	1230	9813	1028	.80	219	10.6	99	6.9	6.6	279
SEP 25...	0845	9813	1028	2.1	246	11.8	112	6.8	6.3	238

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 16...	8.9	19.2	18.3	16.8	16.2	<1.0	<1.0	7.8	7.8	<5
JAN 08...	7.4	15.4	15.6	12.9	13.1	--	--	6.3	6.2	<5
MAR 20...	7.7	11.2	11.7	10.1	10.6	--	--	8.6	8.7	<5
JUN 05...	10.9	15.7	15.8	12.8	12.9	--	--	7.5	7.4	<5
JUL 17...	12.8	25.3	25.2	19.3	18.2	--	--	9.3	9.5	<5
SEP 25...	12.8	15.3	15.6	10.8	10.9	--	--	5.7	5.8	44

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (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 16...	20	13.0	86.1	4	<200	<200	1910	2140	1230	1270
JAN 08...	16	9.5	76.4	<2	<200	<200	1410	1480	950	965
MAR 20...	7	11.3	61.2	<2	<200	414	830	1100	839	850
JUN 05...	16	11.6	75.9	28	<200	<200	1810	2020	1060	1060
JUL 17...	17	13.1	82.7	6	<200	<200	2170	2550	1290	1330
SEP 25...	12	8.0	67.9	<2	<200	400	1810	2340	1100	1130

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	
NOV										
16...	1045	9813	1028	1.4	285	10.3	88	6.7	6.5	280
JAN										
08...	1345	9813	1028	5.0	337	12.0	99	6.3	6.7	237
MAR										
20...	1045	9813	1028	4.0	383	11.9	100	6.3	6.4	252
JUN										
05...	1000	9813	1028	1.4	384	9.0	86	6.8	6.4	292
JUL										
17...	1215	9813	1028	1.4	247	11.3	103	6.9	6.6	299
SEP										
25...	0915	9813	1028	2.5	268	11.3	115	6.9	6.6	314

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										
16...	8.7	21.1	20.9	17.0	17.2	<1.0	<1.0	7.7	7.6	<5
JAN										
08...	7.3	14.9	15.5	12.4	12.9	--	--	6.0	6.2	<5
MAR										
20...	8.2	17.3	17.2	13.5	13.4	--	--	7.2	7.2	<5
JUN										
05...	13.4	19.1	20.9	14.0	14.6	--	--	7.2	6.7	<5
JUL										
17...	15.8	22.8	27.5	17.8	19.3	--	--	8.2	7.5	<5
SEP										
25...	15.8	26.2	24.7	16.3	15.7	--	--	5.3	5.4	<5

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (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										
16...	26	11.1	89.2	28	<200	480	2600	3480	1450	1420
JAN										
08...	16	9.3	76.0	<2	<200	<200	1490	1490	916	968
MAR										
20...	18	8.7	75.4	<2	<200	279	580	1000	933	962
JUN										
05...	22	9.6	83.2	32	<200	<200	1090	1190	1030	956
JUL										
17...	28	9.0	93.6	<2	<200	227	1340	1720	1180	1060
SEP										
25...	32	4.8	86.7	10	<200	243	810	1550	758	869

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	
MAR										
20...	1300	9813	1028	.26	384	7.8	72	5.7	5.8	419
JUN										
05...	1215	9813	1028	.28	385	4.9	48	5.7	6.0	426
JUL										
17...	1415	9813	1028	.28	319	7.0	66	5.9	5.8	420
SEP										
25...	1045	9813	1028	.83	318	.6	6	6.1	5.9	440

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 AS CAC03) (70508)
MAR								
20...	12.1	27.8	28.8	21.6	22.5	2.8	2.8	15
JUN								
05...	13.5	29.7	29.8	24.5	24.7	3.0	2.8	11
JUL								
17...	12.7	33.9	33.5	25.7	25.5	3.1	3.1	40
SEP								
25...	12.0	31.8	30.4	23.7	22.9	3.1	3.0	53

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	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)
MAR										
20...	28	2.6	152	22	212	350	22200	24100	1630	1650
JUN										
05...	36	2.9	155	<2	<200	218	24600	25200	1600	1510
JUL										
17...	30	3.4	159	10	<200	334	28300	28700	1620	1670
SEP										
25...	24	3.2	169	4	233	593	22800	28100	1640	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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 16...	1030	9813	1028	.53	257	10.7	90	6.6	6.2	319
MAR 20...	1330	9813	1028	.22	379	11.4	101	5.7	5.9	199
JUN 05...	1145	9813	1028	.22	351	9.3	91	6.6	6.2	270
JUL 17...	1345	9813	1028	.22	304	8.5	88	6.2	6.1	240
SEP 25...	1030	9813	1028	.04	314	3.6	35	6.6	6.1	270

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 16...	8.2	22.4	22.6	19.8	20.0	<1.0	<1.0	5.8	5.7	8.4
MAR 20...	10.0	8.2	7.9	6.6	6.4	--	--	10.2	10.6	7.2
JUN 05...	14.7	16.5	16.2	13.0	12.8	--	--	6.1	6.8	7.2
JUL 17...	16.8	17.0	17.2	11.0	11.0	--	--	5.8	5.7	23
SEP 25...	14.5	19.4	19.2	13.3	13.3	--	--	6.7	6.5	32

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (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 16...	13	9.2	119	8	<200	223	12000	12600	1390	1320
MAR 20...	4	18.9	46.1	24	<200	325	3510	4360	598	590
JUN 05...	9	9.9	91.0	32	<200	240	6990	8150	1050	1160
JUL 17...	6	8.6	79.4	10	<200	<200	2530	2820	689	670
SEP 25...	10	10.2	83.8	<2	<200	<200	2750	3220	754	725





**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 16...	1015	9813	1028	.53	261	10.7	90	6.5	6.3	327
MAR 20...	1315	9813	1028	4.3	365	11.7	104	6.2	6.3	201
JUN 05...	1130	9813	1028	.96	336	8.9	89	6.7	6.1	272
JUL 17...	1400	9813	1028	.96	236	9.6	101	6.6	6.2	253
SEP 25...	1015	9813	1028	.93	247	4.6	44	6.8	6.1	288

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 16...	8.0	24.2	24.5	19.4	18.8	1.12	<1.0	5.8	5.7	.00
MAR 20...	10.0	8.6	14.2	6.3	6.6	--	--	10.6	11.1	.00
JUN 05...	15.0	16.0	16.3	12.6	12.8	--	--	5.8	6.4	6.8
JUL 17...	17.4	16.8	16.9	13.8	13.8	--	--	5.7	5.7	29
SEP 25...	13.8	18.8	19.7	13.5	13.8	--	--	6.9	7.1	38

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (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 16...	16	8.8	118	10	<200	<200	8940	8860	1300	1240
MAR 20...	10	18.8	45.7	34	<200	388	3100	5360	602	668
JUN 05...	9	10.1	92.5	26	<200	242	6200	7410	954	1070
JUL 17...	6	8.4	84.8	30	<200	322	6500	7770	986	973
SEP 25...	8	11.0	88.0	<2	<200	267	5260	6650	1010	1060

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	
NOV 16...	0915	9813	1028	.92	234	.4	4	6.2	--	617
JAN 08...	1215	9813	1028	2.0	370	2.7	26	6.0	--	591
MAR 20...	1345	9813	1028	4.8	367	1.8	--	5.9	5.9	500
JUN 05...	1245	9813	1028	2.3	367	.1	0	5.8	6.0	668
JUL 17...	1445	9813	1028	2.3	279	2.6	24	6.0	5.8	591
SEP 25...	1115	9813	1028	1.8	290	.1	0	6.3	6.0	672

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)
NOV 16...	11.0	--	--	--	--	--	--	--
JAN 08...	11.0	--	--	--	--	--	--	--
MAR 20...	11.0	32.7	35.4	33.2	35.9	7.5	7.5	<5
JUN 05...	11.1	43.0	43.1	46.5	46.6	8.2	7.9	<5
JUL 17...	11.1	47.3	47.4	47.6	47.8	8.1	8.1	14
SEP 25...	11.0	44.9	43.6	47.6	45.7	6.4	6.4	19

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (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 16...	--	--	--	--	--	--	--	--	--	--
JAN 08...	--	--	--	--	--	--	--	--	--	--
MAR 20...	36	10.6	177	8	<200	<200	10900	14100	2360	2380
JUN 05...	48	14.1	255	58	<200	<200	17900	23400	2600	2600
JUL 17...	38	13.5	222	22	<200	<200	16200	19300	2730	2770
SEP 25...	56	10.1	250	<2	<200	<200	22100	22600	2950	3030

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED SATUR- ATION (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (MG/L) (00301)	PH WATER WHOLE FIELD ARD UNITS) (00400)	PH WATER WHOLE LAB ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
NOV										
16...	0930	9813	1028	.92	264	8.8	80	6.4	6.4	601
JAN										
08...	1300	9813	1028	2.0	347	9.1	82	6.3	6.5	585
MAR										
20...	1420	9813	1028	4.8	369	8.5	77	6.2	--	497
JUN										
05...	1230	9813	1028	2.3	400	8.2	75	6.2	6.2	660
JUL										
17...	1515	9813	1028	2.3	279	4.9	45	6.5	6.2	585
SEP										
25...	1145	9813	1028	1.8	279	4.9	45	6.5	6.2	585

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										
16...	10.4	40.5	40.3	42.9	43.0	2.0	2.0	6.0	6.2	<5
JAN										
08...	10.7	39.1	41.4	41.3	44.1	--	--	6.4	6.4	<5
MAR										
20...	11.1	--	--	--	--	--	--	--	--	--
JUN										
05...	11.9	41.4	42.9	45.2	47.0	--	--	8.1	8.6	2.8
JUL										
17...	11.6	43.1	42.9	45.0	44.8	--	--	8.2	8.1	14
SEP										
25...	11.6	43.6	42.6	43.2	42.5	--	--	7.9	8.0	24

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)
NOV										
16...	52	9.6	238	14	<200	<200	15800	18300	2640	2840
JAN										
08...	48	10.5	238	4	<200	<200	11600	15200	2360	2380
MAR										
20...	--	--	--	--	--	--	--	--	--	--
JUN										
05...	42	14.6	243	38	<200	<200	15000	17200	2740	2880
JUL										
17...	34	13.5	224	36	<200	<200	13600	18600	2540	2520
SEP										
25...	44	14.4	236	<2	<200	<200	18400	19400	2620	2600

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANALYZING SAMPLE NUMBER (00028)	AGENCY COLLECTING SAMPLE NUMBER (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	PH WATER WHOLE FIELD ARD UNITS (00400)	PH WATER WHOLE LAB ARD UNITS (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
16...	0945	9813	1028	2.5	314	11.0	84	6.5	6.3	146
JAN										
08...	1245	9813	1028	2.6	363	13.3	93	6.3	7.2	456
MAR										
20...	1415	9813	1028	2.6	375	11.9	96	6.3	6.5	217
JUN										
05...	1245	9813	1028	.85	405	7.6	72	6.6	6.4	166
JUL										
17...	1530	9813	1028	.87	328	6.0	63	7.0	7.0	204
SEP										
25...	1200	9813	1028	2.2	356	6.4	80	6.9	6.5	286

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										
16...	4.0	12.9	12.5	6.4	6.4	<1.0	<1.0	4.7	4.6	<5
JAN										
08...	.8	45.6	46.4	27.4	27.9	--	--	4.5	4.4	<5
MAR										
20...	6.1	14.6	14.7	7.2	7.3	--	--	9.4	9.5	<5
JUN										
05...	13.8	11.0	11.0	5.6	5.6	--	--	8.1	7.9	<5
JUL										
17...	17.9	18.7	18.9	9.1	9.1	--	--	4.1	4.1	<5
SEP										
25...	14.8	25.4	25.6	7.4	7.7	--	--	7.9	7.9	<5

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (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										
16...	16	7.5	38.7	22	214	<200	220	400	154	143
JAN										
08...	58	5.5	160	<2	<200	<200	100	120	60.0	60
MAR										
20...	18	18.8	43.2	6	<200	<200	90	130	251	253
JUN										
05...	15	13.2	32.2	6	<200	<200	70	210	93.0	99
JUL										
17...	34	8.0	39.0	46	<200	<200	60	200	116	146
SEP										
25...	19	13.1	71.1	<2	224	<200	310	280	253	255

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
16...	1000	9813	1028	3.4	268	9.9	84	6.4	6.3	449
JAN										
08...	1230	9813	1028	4.6	349	10.7	90	6.4	7.2	544
MAR										
20...	1430	9813	1028	7.5	366	10.1	88	6.2	6.3	396
JUN										
05...	1215	9813	1028	3.1	393	8.7	81	6.3	6.3	510
JUL										
17...	1500	9813	1028	2.3	259	5.1	49	6.6	6.4	516
SEP										
25...	1130	9813	1028	4.0	246	--	--	6.9	6.3	414

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										
16...	8.0	32.4	33.1	32.7	33.5	1.6	1.6	5.7	5.6	<5
JAN										
08...	7.7	45.6	46.4	27.4	27.9	--	--	4.5	4.4	<5
MAR										
20...	9.2	25.1	26.1	23.1	24.1	--	--	7.8	8.1	<5
JUN										
05...	12.4	32.3	33.1	32.7	33.7	--	--	8.0	8.2	<5
JUL										
17...	12.9	39.8	39.9	38.8	38.8	--	--	7.4	7.3	11
SEP										
25...	13.7	32.8	33.0	21.5	21.3	--	--	7.3	7.3	39

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (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										
16...	34	8.6	169	16	<200	<200	11200	13700	1900	1920
JAN										
08...	58	5.5	160	<2	<200	<200	100	120	60	60
MAR										
20...	30	13.6	122	34	<200	<200	6450	9510	1440	1560
JUN										
05...	32	14.1	174	30	<200	<200	10300	11900	1930	1980
JUL										
17...	34	12.6	185	30	<200	<200	9900	13500	2170	2170
SEP										
25...	28	12.9	129	20	<200	223	6310	6420	1200	1120

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED SATUR- ATION (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (MG/L) (00301)	PH WATER WHOLE FIELD STAND- ARD UNITS (00400)	PH WATER WHOLE LAB STAND- ARD UNITS (00403)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
OCT										
02...	1145	9813	1028	101	60	10.2	95	6.7	6.7	328
NOV										
16...	0830	9813	1028	10	402	11.3	86	6.5	6.3	213
JAN										
08...	1145	9813	1028	10	386	14.3	101	5.9	6.7	196
MAR										
20...	0945	9813	1028	22	477	12.8	97	6.0	6.1	154
MAY										
22...	1000	930	1028	16	418	10.8	100	6.3	6.8	193
JUL										
17...	0730	9813	1028	16	404	9.7	100	6.4	6.7	249
SEP										
26...	1415	9813	1028	5.8	510	10.1	94	5.2	5.0	269

DATE	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM 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)
OCT										
02...	12.0	23.9	25.0	18.2	19.2	1.3	1.6	8.1	8.4	<5
NOV										
16...	4.9	17.8	17.6	9.5	9.8	1.8	1.9	6.0	6.1	<5
JAN										
08...	.9	13.1	13.6	6.9	7.4	--	--	5.6	6.0	<5
MAR										
20...	3.1	8.4	8.9	5.3	5.6	--	--	4.6	4.8	4.6
MAY										
22...	12.2	14.0	15.0	7.6	7.9	1.2	1.2	4.4	4.4	8.0
JUL										
17...	16.9	21.5	22.1	12.3	12.5	--	--	8.5	8.2	<5
SEP										
26...	12.1	22.6	22.0	10.5	10.3	--	--	4.4	4.6	44

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (MG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (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 RECOV- ERABLE (MG/L AS BA) (01007)
OCT										
02...	13	11.9	119	4	<200	<200	--	--	--	--
NOV										
16...	16	8.9	66.2	<2	<200	<200	--	--	--	--
JAN										
08...	15	8.2	59.5	<2	<200	356	--	--	--	--
MAR										
20...	6	7.2	40.9	24	<200	620	--	--	--	--
MAY										
22...	5	--	60.0	--	80	680	<40	<40	25.0	26.0
JUL										
17...	14	12.4	76.2	16	<200	<200	--	--	--	--
SEP										
26...	2	6.0	95.9	<2	670	774	--	--	--	--

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

**01571593 -- GOOD SPRING CREEK BL MIDDLE CREEK AT TREMONT, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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)
	OCT 02...	--	--	--	--	--	--	--	--	430
NOV 16...	--	--	--	--	--	--	--	--	150	140
JAN 08...	--	--	--	--	--	--	--	--	410	550
MAR 20...	--	--	--	--	--	--	--	--	340	570
MAY 22...	<3.0	<3.0	<3.0	34	17.0	19	5.0	4.0	<10	550
JUL 17...	--	--	--	--	--	--	--	--	20	130
SEP 26...	--	--	--	--	--	--	--	--	170	190

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)
	OCT 02...	--	--	1060	1120	--	--	--	--	--
NOV 16...	--	--	786	811	--	--	--	--	--	--
JAN 08...	--	--	678	728	--	--	--	--	--	--
MAR 20...	--	--	566	590	--	--	--	--	--	--
MAY 22...	<40	<40	890	950	24	26	<100	<100	55	64
JUL 17...	--	--	618	560	--	--	--	--	--	--
SEP 26...	--	--	1860	1910	--	--	--	--	--	--



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

**01571552 -- SWATARA CREEK AT TREMONT, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	
NOV										
16...	0845	9813	1028	10	336	12.0	93	6.6	6.3	322
JAN										
08...	1200	9813	1028	15	374	13.5	102	6.2	6.7	328
MAR										
20...	1015	9813	1028	11	468	12.4	98	6.0	6.3	256
JUN										
05...	0845	9813	1028	12	386	10.3	95	6.7	6.3	324
JUL										
17...	1200	9813	1028	12	338	11.1	108	6.6	6.5	338
SEP										
25...	0830	9813	1028	33	329	10.0	101	6.7	6.5	288

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										
16...	4.5	25.9	26.0	20.8	21.0	1.6	1.6	8.4	8.2	<5
JAN										
08...	3.5	21.6	23.1	18.9	20.3	--	--	7.5	8.1	<5
MAR										
20...	5.4	14.1	14.6	11.1	11.5	--	--	10.4	10.7	.60
JUN										
05...	12.0	21.3	20.4	17.7	17.0	--	--	10.2	9.8	<5
JUL										
17...	16.7	26.1	25.5	22.4	22.1	--	--	9.7	9.6	<5
SEP										
25...	15.7	20.7	20.7	11.7	11.8	--	--	<.2	<.2	<5

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (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										
16...	15	11.3	118	<2	<200	<200	570	520	1090	1050
JAN										
08...	13	12.5	117	<2	<200	334	1450	2600	1000	1030
MAR										
20...	9	17.9	70.2	28	<200	353	1080	1780	783	802
JUN										
05...	11	16.0	100	22	<200	<200	330	910	947	894
JUL										
17...	9	13.7	114	14	<200	354	220	1120	1190	1190
SEP										
25...	13	14.1	77.6	16	<200	937	390	2320	740	812

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)
NOV 21...	0930	9813	1028	4.1	383	12.2	98	6.4	6.7	407
JAN 08...	0815	930	1028	6.0	382	12.4	96	6.3	6.9	353
MAR 13...	1100	930	1028	13	275	9.2	74	6.4	6.5	445
MAY 21...	1230	930	1028	4.9	257	10.3	95	7.1	7.0	430
JUL 16...	0930	930	1028	7.0	226	10.5	100	6.8	7.4	485
SEP 26...	0945	930	1028	2.9	199	--	--	7.3	7.1	435

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 21...	4.1	30.9	30.5	22.4	22.1	--	--	17.4	17.2	<5
JAN 08...	4.8	29.0	30.0	19.0	20.0	2.1	1.7	12.0	12.0	--
MAR 13...	5.7	25.0	26.0	12.0	13.0	1.5	1.9	35.0	35.0	--
MAY 21...	11.4	33.0	32.0	22.0	23.0	1.9	2.1	9.9	11.0	--
JUL 16...	13.4	40.0	40.0	25.0	24.0	2.7	2.7	15.0	15.0	--
SEP 26...	10.7	31.0	31.0	18.0	18.0	2.4	2.4	19.0	19.0	--

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	ALUM- INUM, DIS- SOLVED ( $\mu$ G/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE ( $\mu$ G/L AS AL) (01105)	ARSENIC DIS- SOLVED ( $\mu$ G/L AS AS) (01000)	ARSENIC TOTAL ( $\mu$ G/L AS AS) (01002)	BARIUM, DIS- SOLVED ( $\mu$ G/L AS BA) (01005)	BARIUM, TOTAL RECOV- ERABLE ( $\mu$ G/L AS BA) (01007)
NOV 21...	24	18.4	140	12	<200	386	--	--	--	--
JAN 08...	--	--	140	--	70	720	--	--	22	21
MAR 13...	14	--	88	--	60	1900	<80	<40	35	48
MAY 21...	10	--	160	--	90	50	<40	<40	20	21
JUL 16...	23	--	180	--	40	870	<40	<40	23	24
SEP 26...	17	--	140	--	<20	600	<40	<40	23	25

**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 2000 TO SEPTEMBER 2001

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 21...	--	--	--	--	--	--	--	--	2150
JAN 08...	<6.0	<6.0	20.0	14	40.0	34	7.0	6.0	3200	4300
MAR 13...	<6.0	<3.0	<6.0	4	19.0	19	<6.0	<3.0	1300	4400
MAY 21...	<3.0	<3.0	<3.0	<3	44.0	43	<3.0	<3.0	1400	1400
JUL 16...	<3.0	17.0	<3.0	<3	37.0	37	<3.0	<3.0	270	3900
SEP 26...	<3.0	<3.0	<3.0	<3	26.0	27	<3.0	<3.0	1200	2700

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 21...	--	--	1550	1570	--	--	--	--	--
JAN 08...	<80	<80	1600	1600	55	61	<200	<200	77	85
MAR 13...	<80	<40	870	910	31	33	<200	<100	67	72
MAY 21...	<40	<40	1700	1700	74	66	<100	<100	82	79
JUL 16...	<40	<40	1600	1600	53	56	<100	<100	41	99
SEP 26...	<40	<40	1300	1300	44	45	<100	<100	71	70

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	PH WATER WHOLE FIELD ARD UNITS) (00400)	PH WATER WHOLE LAB ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
21...	0915	9813	1028	2.5	397	12.4	93	6.1	6.6	413
JAN										
08...	0800	930	1028	4.7	375	14.1	106	6.4	7.0	390
MAR										
13...	1045	930	1028	7.0	353	8.9	70	6.2	6.4	516
MAY										
21...	1230	930	1028	2.3	317	10.3	97	6.9	7.0	406
JUL										
16...	0900	930	1028	4.2	321	9.5	95	6.7	7.4	455
SEP										
26...	0915	930	1028	3.6	283	--	--	7.2	7.2	420

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										
21...	3.2	32.3	31.9	23.1	22.7	--	--	17.0	16.9	<5
JAN										
08...	3.6	29.0	29.0	19.0	19.0	3.2	1.6	14.0	14.0	--
MAR										
13...	5.3	30.0	32.0	11.0	12.0	1.7	2.1	45.0	45.0	--
MAY										
21...	12.7	28.0	29.0	21.0	21.0	1.7	1.7	10.0	11.0	--
JUL										
16...	15.4	38.0	37.0	24.0	24.0	2.3	2.3	14.0	13.0	--
SEP										
26...	11.0	32.0	31.0	17.0	16.0	2.7	2.7	17.0	17.0	--

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV										
21...	20	20.2	138	<2	<200	<200	--	--	--	--
JAN										
08...	--	--	140	--	50	500	--	--	20	20
MAR										
13...	21	--	90.0	--	40	2200	<80	<40	32	48
MAY										
21...	9	--	140	--	60	420	<40	<40	22	21
JUL										
16...	20	--	180	--	20	430	<40	<40	23	23
SEP										
26...	17	--	140	--	<20	190	<40	<40	23	24

**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 2000 TO SEPTEMBER 2001

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 21...	--	--	--	--	--	--	--	--	500
JAN 08...	<6.0	<6.0	18.0	10	30.0	32	<6.0	8.0	1700	3300
MAR 13...	<6.0	<3.0	<6.0	5	14.0	16	<6.0	<3.0	130	3300
MAY 21...	<3.0	<3.0	<3.0	<3	38.0	39	4.0	<3.0	400	1700
JUL 16...	<3.0	15.0	<3.0	<3	36.0	36	<3.0	<3.0	<10	1800
SEP 26...	<3.0	<3.0	72.0	<3	22.0	21	<3.0	<3.0	400	890

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 21...	--	--	1340	1270	--	--	--	--	--
JAN 08...	<80	<80	1500	1500	49	51	<200	<200	50	76
MAR 13...	<80	<40	760	800	22	26	<200	<100	27	42
MAY 21...	<40	<40	1500	1500	63	64	<100	<100	88	98
JUL 16...	<40	<40	1600	1600	56	56	<100	<100	51	73
SEP 26...	<40	<40	1100	1100	70	36	<100	<100	43	54

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

**01571773 -- LORBERRY CR DIV WELLS OUTFLOW NR LORBERRY, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD ARD UNITS) (00400)	PH WATER WHOLE LAB ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
21...	1130	9813	1028	2.0	366	9.1	84	5.3	5.5	451
JAN										
08...	1045	930	1028	1.2	325	9.8	90	5.7	6.1	277
MAR										
13...	1415	930	1028	1.2	406	10.1	94	5.3	4.2	351
MAY										
21...	1715	930	1028	.55	331	10.5	98	6.4	6.3	285
JUL										
16...	1200	930	1028	1.7	279	12.4	110	5.9	6.9	338
SEP										
26...	1300	930	1028	1.1	466	10.3	95	5.2	4.3	619

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 CAC03) (70508)
NOV										
21...	11.7	25.9	28.6	35.9	36.6	--	--	5.1	5.2	15
JAN										
08...	11.5	12.0	13.0	19.0	19.0	1.5	1.3	3.7	3.6	--
MAR										
13...	11.8	17.0	19.0	24.0	23.0	1.5	1.6	3.9	3.7	<5.0
MAY										
21...	11.9	10.0	12.0	19.0	20.0	1.1	1.1	3.3	3.1	<5.0
JUL										
16...	12.3	15.0	27.0	25.0	24.0	1.3	1.2	3.8	3.6	--
SEP										
26...	11.7	24.0	25.0	58.0	56.0	1.7	1.7	4.7	4.7	22

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV										
21...	5	2.9	213	18	<200	1680	--	--	--	--
JAN										
08...	<5	--	110	--	80	1300	--	--	28	29
MAR										
13...	<5	--	160	--	450	1300	<80	<40	27	29
MAY										
21...	<5	--	100	--	110	1100	<40	<40	28	27
JUL										
16...	36	--	140	--	70	1400	<40	<40	28	27
SEP										
26...	--	--	310	--	2500	4200	<40	<40	25	25

**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 2000 TO SEPTEMBER 2001

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 21...	--	--	--	--	--	--	--	--	6850	9070
JAN 08...	<6.0	<6.0	13.0	17	45	49	<6.0	10.0	7900	11000
MAR 13...	<6.0	<3.0	<6.0	<3	65	59	6.0	<3.0	6600	8300
MAY 21...	<3.0	<3.0	<3.0	<3	47	42	5.0	<3.0	8300	10000
JUL 16...	<3.0	24.0	<3.0	<3	50	48	<3.0	<3.0	8600	10000
SEP 26...	<3.0	<3.0	<3.0	<3	88	84	<3.0	<3.0	11000	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 21...	--	--	2860	2970	--	--	--	--	--	--
JAN 08...	<80	<80	1900	2000	64	72	<200	<200	130	150
MAR 13...	<80	<40	2300	2700	96	92	<200	<100	220	630
MAY 21...	<40	<40	1900	2000	52	60	<100	<100	110	120
JUL 16...	<40	<40	2100	2000	70	68	<100	<100	140	150
SEP 26...	<40	<40	2600	2500	150	150	<100	<100	340	670

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
21...	1115	9813	1028	3.5	338	9.9	90	5.3	5.1	431
JAN										
08...	1030	930	1028	4.5	318	10.1	91	5.5	6.3	272
MAR										
13...	1400	930	1028	11	331	10.3	94	5.7	4.2	338
MAY										
21...	1645	930	1028	3.5	248	10.0	94	6.8	6.4	269
JUL										
16...	1145	930	1028	3.5	219	10.7	102	6.0	6.8	337
SEP										
26...	1245	930	1028	2.0	443	10.5	101	5.3	4.3	602

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										
21...	11.1	23.4	26.5	33.1	33.7	--	--	5.0	5.1	20
JAN										
08...	10.9	12.0	11.0	18.0	18.0	1.4	1.1	3.5	3.4	--
MAR										
13...	11.1	16.0	16.0	23.0	22.0	1.3	1.4	4.3	4.2	<5.0
MAY										
21...	11.8	11.0	12.0	19.0	19.0	1.1	1.1	3.1	3.2	<5.0
JUL										
16...	12.6	16.0	22.0	24.0	24.0	1.2	1.2	3.7	3.6	--
SEP										
26...	11.8	25.0	24.0	54.0	51.0	1.6	1.6	4.8	4.7	18

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV										
21...	3	3.0	205	12	590	1520	--	--	--	--
JAN										
08...	<5	--	100	--	90	980	--	--	29	27
MAR										
13...	<5	--	150	--	100	1200	<80	<40	27	27
MAY										
21...	<5	--	100	--	100	1100	<40	<40	27	27
JUL										
16...	17	--	130	--	40	1300	<40	<40	26	27
SEP										
26...	--	--	290	--	1200	3600	<40	<40	25	26



**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 2000 TO SEPTEMBER 2001

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 21...	--	--	--	--	--	--	--	--	6470
JAN 08...	<6.0	<6.0	8.0	12	44	43	<6.0	<6.0	7500	8600
MAR 13...	<6.0	<3.0	<6.0	<3	55	54	<6.0	<3.0	6000	7600
MAY 21...	3.0	<3.0	5.0	<3	65	39	19.0	<3.0	7600	9400
JUL 16...	<3.0	140	<3.0	<3	46	47	<3.0	<3.0	7600	8900
SEP 26...	<3.0	<3.0	<3.0	<3	79	75	<3.0	<3.0	9900	10000

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 21...	--	--	2790	2880	--	--	--	--	--
JAN 08...	<80	<80	1900	1900	62	62	<200	<200	130	130
MAR 13...	<80	<40	2100	2100	84	86	<200	<100	210	230
MAY 21...	<40	<40	1800	1900	56	54	<100	<100	110	110
JUL 16...	<40	<40	2000	1900	68	68	<100	<100	120	150
SEP 26...	<40	<40	2400	2300	140	130	<100	<100	310	490

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

**01571776 -- STUMPS RUN AT LORBERRY, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
21...	1100	9813	1028	.85	315	11.6	90	5.4	6.0	53
JAN										
08...	1015	930	1028	.85	346	12.7	93	5.1	6.2	58
MAR										
13...	1345	930	1028	.93	409	12.4	95	5.1	5.6	56
MAY										
21...	1615	930	1028	.49	434	10.5	95	5.8	5.9	27
JUL										
16...	1130	930	1028	.23	485	8.6	86	5.3	6.1	68
SEP										
26...	1230	930	1028	.21	456	9.5	89	5.9	6.1	75

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										
21...	4.7	5.2	3.6	3.3	2.5	--	--	.9	.7	.60
JAN										
08...	2.7	3.7	3.7	2.6	2.6	.6	.6	.9	1.0	--
MAR										
13...	4.1	4.6	18.0	2.7	2.5	1.0	2.2	.8	.8	--
MAY										
21...	10.9	3.6	3.6	2.4	2.4	.7	.7	.7	.7	<5.0
JUL										
16...	15.0	4.6	4.1	3.1	2.8	0.8	.7	.9	.7	--
SEP										
26...	12.5	4.2	3.9	2.6	2.4	0.8	.8	.9	.8	--

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV										
21...	6	.7	15.2	4	<200	<200	--	--	--	--
JAN										
08...	<5	--	19.0	--	50	60	--	--	17	17
MAR										
13...	<5	--	25.0	--	90	210	<80	<40	19	27
MAY										
21...	<5	--	18.0	--	140	180	<40	<40	21	21
JUL										
16...	<5	--	24.0	--	40	100	<40	<40	22	22
SEP										
26...	<5	--	20.0	--	40	80	<40	<40	19	20

**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 2000 TO SEPTEMBER 2001

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 21...	--	--	--	--	--	--	--	--	2670
JAN 08...	<6.0	<6.0	10.0	7	<6.0	<6	<6.0	<6.0	70	90
MAR 13...	<6.0	<3.0	<6.0	<3	<6.0	<3	<6.0	<3.0	1100	390
MAY 21...	<3.0	<3.0	<3.0	<3	<3.0	<3	470	<3.0	100	430
JUL 16...	<3.0	8.0	<3.0	<3	<3.0	<3	<3.0	3.0	460	90
SEP 26...	<3.0	<3.0	<3.0	<3	<3.0	<3	<3.0	<3.0	230	100

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 21...	--	--	184	58	--	--	--	--	--
JAN 08...	<80	<80	100	100	<10.0	<10	<200	<200	55	56
MAR 13...	<80	<40	180	3200	11.0	11	<200	<100	76	2800
MAY 21...	<40	<40	160	220	16.0	10	<100	<100	76	74
JUL 16...	<40	<40	190	170	17.0	16	<100	<100	83	82
SEP 26...	<40	<40	160	160	10.0	9	<100	<100	43	86

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD ARD UNITS) (00400)	PH WATER WHOLE LAB ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
21...	1045	9813	1028	.00	259	.2	2	3.9	3.9	1820
JAN										
08...	1000	930	1028	.02	281	3.6	34	3.8	3.5	1740
MAR										
13...	1330	930	1028	.04	306	3.5	33	3.7	3.1	1800
MAY										
21...	1545	930	1028	.01	385	.9	9	3.9	3.2	1720
JUL										
16...	1115	930	1028	.01	406	4.0	38	3.6	3.3	1660
SEP										
26...	1215	930	1028	.01	479	.3	1	3.9	3.0	1520

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										
21...	12.9	139	144	89.0	93.6	--	--	1.9	1.7	484
JAN										
08...	12.8	140	140	72.0	73.0	2.8	2.7	2.0	2.0	450
MAR										
13...	12.8	150	150	70.0	71.0	3.0	2.9	1.8	2.1	430
MAY										
21...	12.8	26	24	11.0	13.0	1.3	1.4	1.4	1.5	110
JUL										
16...	12.9	150	140	71.0	68.0	3.6	3.0	1.9	1.7	420
SEP										
26...	12.7	140	140	64.0	61.0	3.2	3.4	1.8	2.3	390

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV										
21...	.0	.7	1400	4	7650	7730	--	--	--	--
JAN										
08...	<5	--	1100	--	6800	6800	--	--	15	15
MAR										
13...	<5	--	1100	--	6100	6300	<80	<40	15	16
MAY										
21...	--	--	210	--	5500	4400	<40	<40	41	41
JUL										
16...	--	--	1100	--	6200	6000	<40	<40	14	14
SEP										
26...	--	--	1000	--	5200	5600	<40	<40	16	860

**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 2000 TO SEPTEMBER 2001

DATE	CADMIUM	CADMIUM	CHRO-	CHRO-	COBALT,	COBALT,	COBALT,	COPPER,	COPPER,	IRON,	IRON,
	DIS- SOLVED (µG/L AS CD) (01025)	WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	MIUM, DIS- SOLVED (µG/L AS CR) (01030)	MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	DIS- SOLVED (µG/L AS CO) (01035)	TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	DIS- SOLVED (µG/L AS CU) (01040)	TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	DIS- SOLVED (µG/L AS FE) (01046)	TOTAL RECOV- ERABLE (µG/L AS FE) (01045)
NOV 21...	--	--	--	--	--	--	--	--	--	254000	263000
JAN 08...	<6.0	<6.0	23	18	330	330	<6.0	<6.0	240000	240000	
MAR 13...	<6.0	<3.0	<6.0	<3	310	310	<6.0	4.0	230000	230000	
MAY 21...	<3.0	<3.0	6.0	<3	84	66	310	90	19000	23000	
JUL 16...	5.0	27	<3.0	<3	290	280	<3.0	<3.0	230000	220000	
SEP 26...	8.0	10	<3.0	<3	250	240	<3.0	<3.0	210000	210000	

DATE	LEAD,	LEAD,	MANGA-	MANGA-	NICKEL,	NICKEL,	SELE-	SELE-	ZINC,	ZINC,
	DIS- SOLVED (µG/L AS PB) (01049)	TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	NESE, DIS- SOLVED (µG/L AS MN) (01056)	NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	DIS- SOLVED (µG/L AS NI) (01065)	TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NIUM, DIS- SOLVED (µG/L AS SE) (01145)	NIUM, TOTAL SOLVED (µG/L AS SE) (01147)	DIS- SOLVED (µG/L AS ZN) (01090)	TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 21...	--	--	13100	13500	--	--	--	--	--	--
JAN 08...	<80	<80	11000	11000	330	330	<200	<200	540	530
MAR 13...	<80	<40	11000	11000	320	310	<200	<100	1200	560
MAY 21...	<40	<40	1500	1600	110	86	<100	<100	310	270
JUL 16...	<40	<40	11000	10000	290	290	<100	<100	530	480
SEP 26...	<40	<40	9000	8800	250	240	<100	<100	440	590

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	PH WATER WHOLE FIELD ARD UNITS) (00400)	PH WATER WHOLE LAB ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
21...	1000	9813	1028	3.7	466	10.5	91	5.0	5.0	407
JAN										
08...	0915	930	1028	6.2	381	10.9	74	6.4	5.9	255
MAR										
13...	1215	930	1028	11	386	7.0	60	5.2	4.2	275
MAY										
21...	1445	930	1028	4.5	293	10.2	94	6.8	5.2	238
JUL										
16...	1015	930	1028	3.0	200	10.1	97	6.6	6.7	317
SEP										
26...	1130	930	1028	2.2	528	10.6	99	4.7	4.1	495

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										
21...	8.8	23.2	22.7	30.9	30.0	--	--	4.9	4.8	24
JAN										
08...	8.5	12.0	12.0	16.0	16.0	1.2	1.1	3.2	3.2	--
MAR										
13...	8.7	13.0	13.0	17.0	17.0	1.1	1.1	4.1	4.1	<5.0
MAY										
21...	11.7	10.0	11.0	16.0	17.0	1.1	1.2	3.1	3.2	<5.0
JUL										
16...	13.1	18.0	19.0	21.0	20.0	1.1	1.1	3.4	3.2	--
SEP										
26...	11.3	23.0	22.0	39.0	37.0	1.4	1.4	3.9	3.8	12

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV										
21...	3	2.9	189	10	570	1440	--	--	--	--
JAN										
08...	<5	--	100	--	100	950	--	--	25	25
MAR										
13...	<5	--	110	--	160	1000	<80	<40	24	24
MAY										
21...	<5	--	90	--	80	1200	<40	<40	24	24
JUL										
16...	14	--	120	--	40	1100	<40	<40	24	25
SEP										
26...	--	--	230	--	560	2500	<40	<40	25	25

**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 2000 TO SEPTEMBER 2001

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 21...	--	--	--	--	--	--	--	--	7570
JAN 08...	<6.0	<6.0	12.0	11	39.0	42	<6.0	<6.0	6500	8000
MAR 13...	<6.0	<3.0	<6.0	<3	42.0	41	<6.0	<3.0	4100	5800
MAY 21...	<3.0	<3.0	<3.0	<3	35.0	38	<3.0	<3.0	5100	7600
JUL 16...	<3.0	23.0	<3.0	<3	42.0	41	<3.0	<3.0	4100	7000
SEP 26...	<3.0	<3.0	<3.0	<3	60.0	57	<3.0	<3.0	7100	7800

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 21...	--	--	2780	2750	--	--	--	--	--
JAN 08...	<80	<80	1700	1700	61	57	<200	<200	120	120
MAR 13...	<80	<40	1600	1600	63	66	<200	<100	170	160
MAY 21...	<40	<40	1500	1600	58	58	<100	<100	99	110
JUL 16...	<40	<40	1700	1700	62	61	<100	<100	94	130
SEP 26...	<40	<40	1900	1900	100	98	<100	<100	230	220

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

**0157177780 -- PANTHER HEAD DISCH TO LORBERRY CR NR LORBERRY JCT, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED CENT SATUR- ATION (00301)	PH WATER WHOLE FIELD ARD UNITS) (00400)	PH WATER WHOLE LAB ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
NOV										
21...	1015	9813	1028	.001	534	5.3	45	3.5	3.6	439
JAN										
08...	0930	930	1028	.03	537	10.9	87	3.2	3.4	431
MAR										
13...	1230	930	1028	.011	696	7.3	55	3.2	3.5	372
MAY										
21...	1515	930	1028	.02	534	7.7	70	3.3	3.3	479
JUL										
16...	1030	930	1028	.002	676	4.9	50	3.1	3.4	485
SEP										
26...	1145	930	1028	.002	691	6.5	62	3.5	3.5	454

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										
21...	8.0	15.3	15.4	11.7	11.8	--	--	1.3	1.3	76
JAN										
08...	5.5	8.5	8.4	8.9	8.8	.93	1.2	1.4	1.4	57
MAR										
13...	5.2	7.1	7.0	7.3	7.1	.87	.8	1.3	1.1	47
MAY										
21...	11.1	9.6	8.7	9.7	10.0	1.00	1.0	1.2	1.2	66
JUL										
16...	16.1	13.0	12.0	12.0	12.0	1.00	1.1	1.4	1.3	78
SEP										
26...	13.2	20.0	18.0	13.0	12.0	1.20	1.2	1.6	1.5	69

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)
NOV										
21...	.0	1.0	169	6	8840	9300	--	--	--	--
JAN										
08...	<5	--	130	--	8000	7800	--	--	30	30
MAR										
13...	<5	--	110	--	5700	5800	<80	<40	30	28
MAY										
21...	--	--	130	--	7800	8300	<40	<40	31	32
JUL										
16...	--	--	170	--	9800	9700	<40	<40	42	42
SEP										
26...	--	--	170	--	9000	9000	<40	<40	51	52



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

**0157177780 -- PANTHER HEAD DISCH TO LORBERRY CR NR LORBERRY JCT, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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 21...	--	--	--	--	--	--	--	--	720
JAN 08...	<6.0	<6.0	13.0	16	140	140	66.0	66.0	1800	1800
MAR 13...	<6.0	<3.0	<6.0	<3	100	98	50.0	46.0	1400	1400
MAY 21...	<3.0	<3.0	<3.0	<3	150	140	65.0	62.0	2300	2200
JUL 16...	<3.0	4.0	<3.0	<3	180	170	65.0	64.0	2800	2700
SEP 26...	<3.0	<3.0	<3.0	<3	170	160	66.0	68.0	920	2700

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 21...	--	--	2720	2810	--	--	--	--	--
JAN 08...	<80	<80	2000	2000	210	210	<200	<200	560	550
MAR 13...	<80	<40	1500	1500	160	160	<200	<100	450	430
MAY 21...	<40	<40	2000	1900	250	230	<100	<100	610	590
JUL 16...	<40	<40	2700	2600	280	280	<100	<100	740	700
SEP 26...	<40	<40	3400	3300	260	240	<100	<100	750	690

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

**0157177790 -- UNNAMED TRIB TO LORBERRY CR NR LORBERRY JCT, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV	21...	9813	1028	.62	448	11.0	87	5.3	5.8	14
JAN	08...	930	1028	.48	480	13.4	95	4.4	5.3	17
MAR	13...	930	1028	5.0	590	12.8	97	4.3	5.2	23
MAY	21...	930	1028	1.4	470	9.9	90	5.3	5.4	15
JUL	16...	930	1028	5.1	553	8.1	80	4.5	5.6	31
SEP	26...	930	1028	1.7	584	9.2	89	4.7	4.9	45

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 CAC03) (70508)
NOV	21...	5.4	1.3	1.0	.67	.47	--	.9	.8	3.0
JAN	08...	1.3	1.2	.9	.66	.53	.55	1.2	1.0	--
MAR	13...	2.2	1.2	1.1	.67	.63	.43	.9	.8	--
MAY	21...	11.2	0.8	.9	.48	.45	.42	.8	.7	<5.0
JUL	16...	14.9	1.0	.8	.44	.39	.30	.9	.9	--
SEP	26...	13.5	1.5	1.3	.82	.68	.77	1.0	.8	<5.0

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV	21...	4	1.2	2.5	6	247	<200	--	--	--
JAN	08...	<5	--	4.9	--	410	130	--	--	14
MAR	13...	<5	--	5.8	--	170	200	<80	<40	17
MAY	21...	<5	--	3.1	--	260	170	<40	<40	12
JUL	16...	<5	--	2.4	--	170	370	<40	<40	8
SEP	26...	--	--	6.1	--	350	460	<40	<40	26

**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 2000 TO SEPTEMBER 2001

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 21...	--	--	--	--	--	--	--	--	200	210
JAN 08...	<6.0	<6.0	16.0	15	<6.0	<6	<6.0	<6.0	400	140
MAR 13...	<6.0	<3.0	<6.0	<3	<6.0	<3	<6.0	4.0	120	160
MAY 21...	<3.0	<3.0	<3.0	<3	<3.0	<3	9.0	<3.0	260	290
JUL 16...	<3.0	30.0	<3.0	<3	<3.0	<3	47	<3.0	360	580
SEP 26...	<3.0	<3.0	<3.0	<3	<3.0	<3	3.0	<3.0	500	660

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 21...	--	--	60	17	--	--	--	--	--	--
JAN 08...	<80	<80	50	30	<10	<10	<200	<200	23	11
MAR 13...	<80	<40	51	41	<10	<5	<200	<100	31	18
MAY 21...	<40	<40	30	30	<5	<5	<100	<100	14	8
JUL 16...	<40	<40	30	40	<5	<5	<100	<100	21	22
SEP 26...	<40	<40	100	80	7	<5	<100	<100	30	21

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV 21...	0900	9813	1028	5.2	382	11.3	92	6.1	5.6	358
JAN 08...	0745	930	1028	8.2	350	11.6	95	6.5	5.4	216
MAR 13...	1030	930	1028	18	343	9.2	74	6.1	5.0	221
MAY 21...	1215	930	1028	6.9	321	10.1	93	6.5	5.7	222
JUL 16...	0845	930	1028	6.2	272	10.6	102	6.5	6.8	276
SEP 26...	0900	930	1028	12	356	--	--	6.2	5.0	356

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 21...	6.2	22.1	22	26	25	--	--	6.3	6.6	15
JAN 08...	5.6	11.0	11	13	13	1.8	1.1	3.7	3.7	--
MAR 13...	6.0	10.0	9.2	10	10	1.0	.9	12.0	5.0	<5.0
MAY 21...	11.6	11.0	11	13	14	1.0	1.0	3.5	3.5	<5.0
JUL 16...	13.2	18.0	17	18	18	1.1	1.1	3.5	3.3	--
SEP 26...	11.0	18.0	17	24	23	1.3	1.3	5.8	5.4	--

DATE	ANC WATER UNFLTRD FET LAB MG/L AS CAC03 (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV 21...	4	5.6	153	16	200	1000	--	--	--	--
JAN 08...	<5	--	81	--	70	960	--	--	23	22
MAR 13...	<5	--	66	--	80	820	<80	<40	24	23
MAY 21...	<5	--	82	--	70	670	<40	<40	20	21
JUL 16...	10	--	110	--	<20	790	<40	<40	21	22
SEP 26...	<5	--	140	--	120	1200	<40	<40	25	26

**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 2000 TO SEPTEMBER 2001

DATE	CADMIUM	CADMIUM	CHRO-	CHRO-	COBALT,	COBALT,	COPPER,	COPPER,	IRON,	IRON,
	DIS- SOLVED (µG/L AS CD) (01025)	WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	MIUM, DIS- SOLVED (µG/L AS CR) (01030)	MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	DIS- SOLVED (µG/L AS CO) (01035)	TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	DIS- SOLVED (µG/L AS CU) (01040)	TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	DIS- SOLVED (µG/L AS FE) (01046)	TOTAL RECOV- ERABLE (µG/L AS FE) (01045)
NOV 21...	--	--	--	--	--	--	--	--	4480	6630
JAN 08...	<6.0	<6.0	11.0	19	29	33	<6.0	11.0	3900	6100
MAR 13...	<6.0	<3.0	<6.0	<3	25	24	<6.0	3.0	2000	4700
MAY 21...	<3.0	<3.0	<3.0	<3	26	25	5.0	<3.0	2700	4100
JUL 16...	<3.0	22.0	<3.0	<3	33	33	<3.0	<3.0	<10	4000
SEP 26...	<3.0	<3.0	<3.0	<3	33	32	<3.0	<3.0	3000	4000

DATE	LEAD,	LEAD,	MANGA-	MANGA-	NICKEL,	NICKEL,	SELE-	SELE-	ZINC,	ZINC,
	DIS- SOLVED (µG/L AS PB) (01049)	TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	NESE, DIS- SOLVED (µG/L AS MN) (01056)	NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	DIS- SOLVED (µG/L AS NI) (01065)	TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NIUM, DIS- SOLVED (µG/L AS SE) (01145)	NIUM, TOTAL SOLVED (µG/L AS SE) (01147)	DIS- SOLVED (µG/L AS ZN) (01090)	TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)
NOV 21...	--	--	2010	2090	--	--	--	--	--	--
JAN 08...	<80	<80	1200	1200	44	45	<200	<200	120	100
MAR 13...	<80	<40	890	920	36	40	<200	<100	110	110
MAY 21...	<40	<40	1100	1100	47	39	<100	<100	93	79
JUL 16...	<40	<40	1400	1400	49	50	<100	<100	59	100
SEP 26...	<40	<40	1100	1100	56	57	<100	<100	140	130

**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 2000 TO SEPTEMBER 2001

DATE	TIME	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED CENT SATUR- ATION (00301)	PH WATER WHOLE FIELD ARD UNITS) (00400)	PH WATER WHOLE LAB ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)
NOV										
21...	0845	9813	1028	4.2	400	13.6	97	6.2	6.5	262
JAN										
08...	0730	930	1028	17.4	361	14.2	104	6.7	6.8	209
MAR										
13...	1015	930	1028	90	359	9.9	75	6.2	6.2	156
MAY										
21...	1200	930	1028	8.2	399	9.6	90	6.9	7.1	245
JUL										
16...	0830	930	1028	24.9	419	11.1	114	6.4	7.0	263
SEP										
26...	0830	930	1028	24	385	--	--	6.9	6.7	252

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										
21...	1.6	20.9	20.7	15.1	14.9	--	--	6.9	6.9	<5
JAN										
08...	1.2	14.0	14.0	10.0	9.9	1.9	1.1	6.3	6.4	--
MAR										
13...	3.6	8.8	9.0	5.1	5.2	1.3	1.3	8.7	8.7	--
MAY										
21...	12.1	14.0	17.0	13.0	13.0	1.2	1.2	6.4	6.2	--
JUL										
16...	15.0	18.0	18.0	14.0	13.0	1.3	1.3	7.1	7.0	--
SEP										
26...	11.2	17.0	17.0	10.0	10.0	2.4	2.4	6.9	6.7	--

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CAC03) (00417)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)
NOV										
21...	13	9.6	90	<2	<200	<200	--	--	--	--
JAN										
08...	--	--	68	--	80	290	--	--	20	20
MAR										
13...	6	--	36	--	110	1600	<80	<40	24	29
MAY										
21...	9	--	76	--	90	210	<40	<40	20	20
JUL										
16...	8	--	90	--	<20	180	<40	<40	21	22
SEP										
26...	7	--	77	--	40	330	<40	<40	26	27

**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 2000 TO SEPTEMBER 2001

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 21...	--	--	--	--	--	--	--	--	90
JAN 08...	<6.0	<6.0	12.0	<6	15	14	<6.0	8.0	410	740
MAR 13...	<6.0	<3.0	6.0	5	10	9	7.0	4.0	160	3800
MAY 21...	<3.0	<3.0	<3.0	<3	8	10	3.0	<3.0	<10	580
JUL 16...	<3.0	15.0	<3.0	11	8	8	<3.0	<3.0	<10	430
SEP 26...	<3.0	<3.0	<3.0	<3	9	10	<3.0	<3.0	30	640

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 21...	--	--	509	571	--	--	--	--	--
JAN 08...	<80	<80	640	630	27	20	<200	<200	56	56
MAR 13...	<80	<40	370	420	15	17	<200	<100	62	50
MAY 21...	<40	<40	440	510	24	28	<100	<100	48	53
JUL 16...	<40	<40	490	500	24	25	<100	<100	43	55
SEP 26...	<40	<40	600	650	22	43	<100	<100	48	48