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^2 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 has been constructed (fig. 9). Most of the limestone treatment systems were installed during fall 1996 and spring 1997. The type and size of the treatment system was based on streamflow rates and chemistry determined by preliminary monitoring and field trials. The treatments, which include limestone-sand dosing, open limestone channels, anoxic and oxic limestone drains, and limestone diversion wells, were constructed by the Schuylkill County Conservation District and the Swatara Creek Watershed Association, with technical assistance from the USGS and the Pennsylvania Department of Environmental Protection (PaDEP). Each treatment has different advantages and disadvantages; however, all suffer from possible complication associated with variability of flow rates and chemistry of the AMD-contaminated water and from uncertainties about efficiency and longevity of the treatment.

To resolve uncertainties about treatment designs (efficiency and longevity), limestone dissolution in response to variations in water chemistry and coating (armoring) by iron and aluminum hydroxides, and appropriate uses of the various limestone treatments, the USGS has established monitoring stations upstream and downstream of each treatment. During base-flow and high-flow conditions in 1995-98, data on discharge rate and water quality at 48 stations in the Swatara Creek basin and 5 stations in adjacent watersheds (table 3) were collected to characterize untreated mine drainage, treatment-system performance, and cumulative downstream effects. In spring-summer 1996, two streamflow stations on Swatara Creek, Site C3, at Newtown (station 0157155014) and Swatara Creek near Ravine (station 01571820) were installed for continuous streamflow and water-quality monitoring. The data for these stations indicate cumulative effects of AMD remediation throughout the northern Swatara Creek basin.

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

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

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

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).

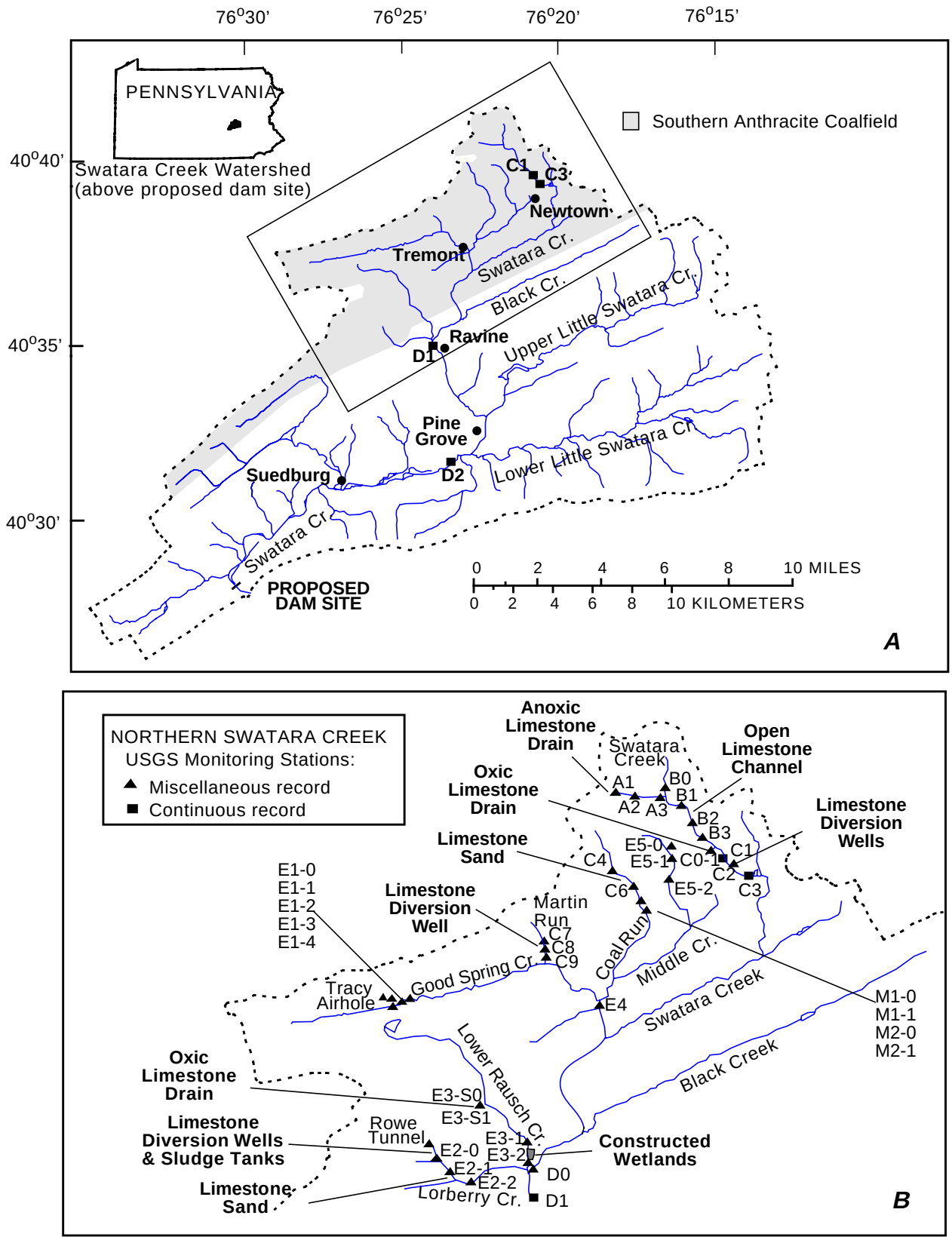

Figure 9. Locations of water-quality and streamflow monitoring stations in the Swatara Creek Basin, Lebanon and Schuylkill Counties, Pennsylvania: *A*, continuous monitoring stations on Swatara Creek above the proposed dam for Swatara State Park Reservoir; B, monitoring stations within the Southern Anthracite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

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

TABLE 3.--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; 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.
E2-0	01571774	LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA	40°35'32"	76°26'22"	1.15
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			
A2	0157154970	NORTHWEST TRIBIUTARY TO SWATARA CREEK, SITE A2, AT ALD OUTFLOW, NEAR NEWTOWN, PA	40°40'32"	76°22'25"	.25
A3	0157154972	NORTHWEST TRIBIUTARY 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.
C0-2	403940076205901	HEGINS RED SEEP, SITE C0-2, AT NEWTOWN, PA	40°39'40"	76°21'01"	n.a.
C0-3	403939076205901	HEGINS WHITE SEEP, SITE C0-3, AT NEWTOWN, PA	40°39'39"	76°20'59"	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
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
E1-1	0157156210	TRACY AIRHOLE, SITE E1-1, NEAR DONALDSON, PA	40°37'45"	76°27'12"	.10
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.
	0157156520	GOOD SPRING CREEK AB TRACY TRIB NEAR DONALDSON, PA	40°37'40"	76°27'09"	.23
	0157156521	GOOD SPRING CREEK BL TRACY TRIB NEAR DONALDSON, PA	40°37'39"	76°27'05"	2.59
	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
SR	01571776	STUMPS RUN AT LORBERRY, PA	40°35'30"	76°26'23"	.65
	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"	
	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

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

LOCAL ID	STATION NUMBER	STATION NAME	LATITUDE	LONGITUDE	DRAINAGE AREA
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
D2-0	01572010	SWATARA CREEK BELOW STATE ROUTE 645 HIGHWAY BRIDGE AT PINE GROVE, PA	40°32'12"	76°21'59"	110
		MISCELLANEOUS-RECORD STATIONS IN NEARBY WATERSHEDS			
VV-258	403650076330701	VALLEY VIEW TUNNEL NEAR VALLEY VIEW, PA	40°36'56"	76°33'04"	n.a.
MC-259	403709076330201	MARKSON COLUMWAY NEAR VALLEY VIEW, PA	40°37'09"	76°33'02"	n.a.
PT-251	403619076310501	PORTER TUNNER NEAR TOWER CITY, PA	40°36’02"	76°30’21"	n.a.

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
18...	1545	80020	1028	.60	17	1.9	6.3	6.3	297	10.7	29.1
DEC											
06...	1315	80020	1028	.29	4	.4	6.3	6.4	317	10.5	40.2
JAN											
19...	1515	9813	1028	.25	10	1.1	6.1	--	333	10.0	38.0
MAR											
03...	1300	9813	1028	.85	39	4.5	6.2	--	326	9.3	29.8
APR											
17...	1315	9813	1028	1.0	54	6.1	6.1	6.3	310	9.1	26.2
JUN											
13...	1015	9813	1028	.89	45	5.1	6.4	6.5	351	9.8	35.6
AUG											
02...	1530	9813	1028	.08	30	3.1	6.0	6.4	276	11.6	42.8
23...	1215	9813	1028	.02	40	4.4	6.6	6.5	431	12.0	49.7
SEP											
13...	1400	9813	1028	.02	78	8.3	6.0	6.6	405	12.6	49.9

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
18...	--	6.62	--	--	--	10.3	--	--	--	--	--
DEC											
06...	--	7.40	--	--	--	11.3	--	18	--	70	--
JAN											
19...	38.0	7.35	7.29	2.3	2.1	11.5	11.3	--	.00	--	80
MAR											
03...	30.5	8.22	8.01	1.9	2.0	11.7	11.8	--	.00	--	52
APR											
17...	25.7	8.84	8.90	2.2	2.7	12.7	12.4	--	.00	--	50
JUN											
13...	36.6	7.41	7.60	1.7	1.8	12.3	12.6	--	.00	--	70
AUG											
02...	41.9	7.87	7.67	2.0	2.3	13.3	13.3	--	.00	--	82
23...	50.5	7.87	8.32	2.1	2.2	13.2	13.3	--	.00	--	94
SEP											
13...	49.2	8.03	8.02	2.3	2.2	16.2	15.7	--	.00	--	100

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
18...	11.9	54.3	289	--	79	--	11300	--	1070	--
DEC										
06...	13.6	70.5	340	--	23	--	12300	--	1180	--
JAN										
19...	15.6	69.5	269	22	<200	<200	13700	14000	1210	1200
MAR										
03...	14.5	82.3	322	10	<200	1100	16300	24700	1410	1390
APR										
17...	16.2	81.9	342	20	<200	211	16400	16900	1580	1590
JUN										
13...	19.1	76.3	298	18	<200	<200	13700	13500	1320	1350
AUG										
02...	20.0	79.3	328	10	<200	<200	9250	9080	1420	1380
23...	17.7	70.8	201	14	<200	<200	12000	12000	1350	1420
SEP										
13...	20.6	61.5	341	14	<200	<200	8310	8420	1390	1390

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
18...	1530	80020	1028	.65	92	10.0	6.9	7.0	237	11.0	25.0
DEC											
06...	1300	80020	1028	.57	91	10.3	6.4	6.8	222	9.8	25.0
JAN											
19...	1500	9813	1028	--	99	13.0	6.3	--	264	3.6	28.3
MAR											
03...	1245	9813	1028	1.3	93	11.4	6.5	--	255	7.1	21.6
APR											
17...	1300	9813	1028	1.5	98	11.5	6.2	6.4	260	8.6	18.4
JUN											
13...	0945	9813	1028	.90	100	10.8	6.7	6.5	255	11.9	22.1
AUG											
02...	1515	9813	1028	.90	96	9.2	5.4	6.4	239	17.4	20.1
SEP											
13...	1345	9813	1028	1.2	100	9.9	5.4	5.7	279	17.2	25.4

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
18...	--	6.10	--	--	--	9.4	--	.0	--	--	--
DEC											
06...	--	5.77	--	--	--	9.7	--	13	--	0	--
JAN											
19...	28.4	6.54	6.63	1.5	1.3	9.4	9.5	--	.00	--	36
MAR											
03...	21.1	6.58	6.41	1.6	1.7	11.3	11.1	--	.00	--	20
APR											
17...	19.2	7.55	7.58	1.6	1.2	13.0	13.4	--	2.6	--	16
JUN											
13...	22.5	6.40	6.55	1.6	1.6	13.4	13.6	--	.00	--	24
AUG											
02...	21.1	5.48	5.48	1.6	1.9	11.6	12.4	--	.00	--	22
SEP											
13...	25.5	8.20	8.25	4.3	4.4	12.7	12.6	--	13	--	4

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
18...	12.0	59.0	217	--	21	--	1200	--	860	--
DEC										
06...	11.9	58.4	397	--	E13	--	580	--	738	--
JAN										
19...	13.7	69.2	276	4	<200	<200	2300	4430	863	887
MAR										
03...	14.6	67.2	359	8	<200	267	4950	6270	1060	1040
APR										
17...	19.4	69.7	290	36	<200	342	5750	7340	1210	1210
JUN										
13...	19.4	65.1	236	20	<200	264	2040	4980	988	1020
AUG										
02...	20.0	58.4	399	18	<200	412	860	2630	864	865
SEP										
13...	16.1	91.5	415	40	<200	3270	1870	3230	1500	1510

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
18...	1515	80020	1028	1.7	93	10.2	4.3	4.3	45	11.1	1.04
DEC											
06...	1245	80020	1028	2.9	91	11.0	4.2	4.2	75	8.4	.96
JAN											
19...	1445	9813	1028	--	93	13.3	4.3	--	75	.7	1.15
MAR											
03...	1230	9813	1028	.47	95	12.2	4.2	--	82	4.5	1.14
APR											
17...	1245	9813	1028	4.0	95	10.9	4.2	4.3	82	9.0	1.17
JUN											
13...	1000	9813	1028	1.7	96	9.9	4.2	4.3	81	14.3	1.27
AUG											
02...	1500	9813	1028	1.1	94	8.9	4.1	4.3	82	17.5	.94
SEP											
13...	1330	9813	1028	.96	94	9.5	4.2	4.2	47	16.6	1.35

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
18...	--	1.02	--	--	--	5.3	--	--	--	0	--
DEC											
06...	--	.98	--	--	--	5.8	--	11	--	33	--
JAN											
19...	.94	1.11	1.03	<1.0	<1.0	5.1	4.9	--	10	0	0
MAR											
03...	1.09	1.01	1.00	<1.0	<1.0	5.8	5.9	--	10	0	0
APR											
17...	1.10	1.13	1.12	<1.0	<1.0	4.8	4.8	--	15	0	0
JUN											
13...	1.05	.99	.94	<1.0	<1.0	6.3	6.3	--	10	0	0
AUG											
02...	.82	.86	.84	<1.0	<1.0	5.3	4.8	--	13	0	0
SEP											
13...	1.04	1.16	1.12	<1.0	1.1	5.4	5.3	--	14	0	0

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
18...	9.9	12.5	480	--	913	--	140	--	177	--
DEC										
06...	10.0	12.3	545	--	872	--	140	--	158	--
JAN										
19...	8.9	13.6	301	6	903	918	120	130	175	163
MAR										
03...	9.3	20.2	515	18	886	918	140	130	166	159
APR										
17...	8.5	19.9	528	12	738	783	150	170	167	165
JUN										
13...	10.6	17.0	421	6	710	760	200	230	173	166
AUG										
02...	8.9	18.6	481	10	782	903	220	400	164	166
SEP										
13...	45.5	105	492	34	993	3140	510	2120	251	244

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

0157154980 - SWATARA CR, BL NW TRIB, SITE B1, NR NEWTOWN, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
18...	1500	80020	1028	2.4	94	10.4	6.9	6.7	109	10.9	8.28
DEC											
06...	1215	9813	1028	3.5	92	10.7	6.4	--	85	8.8	--
06...	1230	80020	1028	2.5	92	10.8	6.4	6.4	85	8.8	5.51
JAN											
19...	1430	9813	1028	--	99	14.2	6.3	--	111	.5	7.62
MAR											
03...	1215	9813	1028	4.7	96	12.3	6.2	--	112	4.9	5.86
APR											
17...	1230	9813	1028	5.4	96	11.2	5.9	5.6	110	8.8	5.79
JUN											
13...	0930	9813	1028	2.5	99	10.3	6.8	6.2	126	13.7	7.87
AUG											
02...	1445	9813	1028	2.0	98	9.3	5.9	5.9	116	17.8	6.61
SEP											
13...	1315	9813	1028	2.2	100	9.9	4.6	4.8	157	16.8	9.84

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
18...	--	2.64	--	--	--	7.2	--	.0	--	--	--
DEC											
06...	--	--	--	--	--	--	--	6.8	--	4	--
06...	--	1.91	--	--	--	6.5	--	6.8	--	4	--
JAN											
19...	7.85	2.60	2.64	<1.0	<1.0	6.0	6.3	--	1.6	--	7
MAR											
03...	6.11	2.40	2.51	<1.0	<1.0	7.1	7.2	--	7.4	--	4
APR											
17...	5.70	3.00	2.93	<1.0	<1.0	6.9	6.5	--	11	--	3
JUN											
13...	7.68	2.82	2.73	<1.0	<1.0	8.4	8.1	.0	3.2	--	6
AUG											
02...	6.66	2.42	2.43	<1.0	<1.0	7.4	7.2	--	9.0	--	4
SEP											
13...	9.75	3.69	3.72	2.1	2.4	7.8	7.7	--	16	--	2

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
18...	10.4	26.4	328	--	203	--	360	--	381	--
DEC										
06...	--	--	440	--	--	--	--	--	--	--
06...	10.3	21.0	435	--	62	--	120	--	268	--
JAN										
19...	10.0	27.2	302	8	<200	800	600	1470	353	366
MAR										
03...	10.5	27.0	397	8	<200	740	1280	1750	376	401
APR										
17...	11.0	28.0	422	16	<200	622	1660	2130	464	454
JUN										
13...	13.5	32.2	294	6	<200	458	610	1620	439	428
AUG										
02...	12.2	26.1	372	30	<200	798	330	1250	384	403
SEP										
13...	61.2	42.3	491	36	776	3270	960	2540	698	697

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
18...	1445	80020	1028	2.4	96	10.6	6.9	7.0	111	10.9	7.78
DEC											
06...	1215	80020	--	--	--	--	--	6.2	--	--	5.46
JAN											
19...	1415	9813	1028	--	98	14.2	5.9	--	110	.2	7.87
MAR											
03...	1200	9813	1028	4.7	94	12.0	6.2	--	112	4.9	6.26
APR											
17...	1215	9813	1028	5.4	99	11.5	5.9	5.7	109	8.8	5.79
JUN											
13...	0915	9813	1028	2.5	100	10.3	6.8	6.1	126	13.7	7.78
AUG											
02...	1430	9813	1028	2.0	95	9.1	5.9	5.9	115	17.9	5.78
SEP											
13...	1300	9813	1028	2.2	90	8.7	4.7	4.8	152	16.9	9.91

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT										
18...	--	2.51	--	--	--	7.0	--	.0	--	--
DEC										
06...	--	1.91	--	--	--	6.5	--	--	--	--
JAN										
19...	7.68	3.31	2.58	<1.0	<1.0	6.2	6.1	--	1.6	7
MAR										
03...	6.18	2.78	2.56	<1.0	<1.0	7.2	7.4	--	4.6	4
APR										
17...	5.65	2.99	2.90	1.1	<1.0	6.5	6.5	--	12	3
JUN										
13...	8.24	2.78	2.96	<1.0	<1.0	8.3	8.8	.0	3.4	6
AUG										
02...	6.56	2.18	2.38	<1.0	<1.0	5.3	7.3	--	12	4
SEP										
13...	9.93	3.83	3.77	2.0	2.3	7.8	7.8	--	16	2

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
18...	10.4	26.4	347	--	162	--	320	--	359	--
DEC										
06...	10.4	20.9	--	--	59	--	120	--	266	--
JAN										
19...	10.1	27.3	299	6	<200	931	620	2040	387	381
MAR										
03...	10.5	27.1	406	14	<200	742	1370	1800	416	411
APR										
17...	10.9	28.8	424	20	<200	658	1540	2090	451	448
JUN										
13...	13.3	28.6	294	6	<200	651	610	1700	432	459
AUG										
02...	12.0	25.9	373	8	<200	881	280	1420	320	395
SEP										
13...	60.4	37.5	492	42	630	3040	790	2530	693	702

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
JAN											
19...	1330	9813	1028	.32	96	11.3	3.5	--	491	8.1	9.02
MAR											
03...	1115	9813	1028	.80	91	10.4	3.5	--	519	9.4	8.21
APR											
17...	1145	9813	1028	.55	99	11.2	3.5	3.7	429	9.8	7.01
JUN											
13...	1400	9813	1028	.47	99	11.2	3.6	3.7	476	10.1	8.65
AUG											
02...	1400	9813	1028	.22	96	10.4	4.9	4.7	335	11.3	20.6
23...	1115	9813	1028	.19	75	10.5	4.9	3.7	474	10.7	9.38
SEP											
13...	1215	9813	1028	.15	80	8.3	3.6	3.6	539	10.1	9.94

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
JAN										
19...	8.55	36.2	36.6	1.6	1.5	5.4	5.5	50	0	0
MAR										
03...	8.47	37.1	37.1	1.7	1.6	4.8	4.9	20	0	0
APR										
17...	7.14	29.9	30.8	1.5	1.5	4.6	4.7	46	0	0
JUN										
13...	8.31	31.8	32.4	1.6	1.6	5.7	5.8	44	0	0
AUG										
02...	20.6	37.2	37.7	1.4	1.5	5.5	5.5	22	--	2
23...	9.50	38.2	39.2	1.6	1.6	5.9	5.9	50	--	0
SEP										
13...	9.59	37.6	38.2	1.8	1.8	6.1	5.9	52	0	0

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
JAN										
19...	5.9	228	485	<2	5140	5040	590	210	1660	1630
MAR										
03...	4.8	257	539	8	4960	4990	260	270	1440	1450
APR										
17...	5.7	209	555	14	3260	3420	190	200	1160	1200
JUN										
13...	5.9	264	708	6	4280	4400	210	220	1500	1530
AUG										
02...	5.2	212	480	8	2350	2790	100	120	1440	1480
23...	5.6	232	560	<2	4890	5090	240	240	1780	1840
SEP										
13...	42.9	257	535	<2	5440	5270	280	340	1940	1910

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
AUG											
02...	1415	9813	1028	.22	88	9.8	3.4	3.6	426	10.2	8.44
23...	1100	9813	1028	.19	94	10.5	3.5	4.6	564	10.1	19.5
SEP											
13...	1230	9813	1028	.15	97	10.6	4.9	4.7	449	11.5	22.5

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
AUG										
02...	8.51	39.8	39.4	1.4	1.2	4.4	5.6	52	0	0
23...	19.5	37.0	36.8	1.9	1.8	6.1	6.0	22	--	2
SEP										
13...	22.7	36.9	36.9	1.8	1.8	5.9	6.0	19	--	2

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
AUG										
02...	5.3	283	559	6	4660	4660	200	210	1680	1680
23...	5.6	200	714	14	3100	5400	200	700	1650	1680
SEP										
13...	44.1	214	486	22	2430	2960	110	190	1640	1610

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

403939076205901 - HEGINS WHITE SEEP, SITE C0-3, AT NEWTOWN, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)
NOV 16...	1130	80020	1028	.00	50	6.0	6.4	6.5	542	7.0

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
NOV 16...	59.0	32.0	8.0	9.8	220	110	294	80	220	1300

403940076205901 - HEGINS RED SEEP, SITE C0-2, AT NEWTOWN, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
NOV 16...	1145	80020	1028	.00	3	.5	6.8	6.3	466	8.5	47.0

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	ACIDITY (MG/L AS CACO3) (00435)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
NOV 16...	23.0	7.5	.0	9.1	130	40	297	E9	140	470

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
JAN											
19...	1145	9813	1028	2.7	97	13.9	6.0	--	138	.8	--
MAR											
03...	1015	9813	1028	2.2	105	13.3	5.5	--	150	5.1	--
APR											
17...	1115	9813	1028	1.0	97	11.2	6.0	--	141	9.0	--
JUN											
13...	1145	9813	1028	1.9	102	10.5	6.9	6.9	156	14.1	9.96
AUG											
02...	1300	9813	1028	.01	94	8.7	6.0	6.1	174	19.2	11.0
SEP											
13...	1130	9813	1028	1.8	92	8.9	6.4	6.3	160	17.3	10.9

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
JAN										
19...	--	--	--	--	--	--	--	--	--	--
MAR										
03...	--	--	--	--	--	--	--	--	--	--
APR										
17...	--	--	--	--	--	--	--	--	--	--
JUN										
13...	19.3	4.99	5.30	1.1	1.1	7.1	7.3	.0	.00	14
AUG										
02...	13.1	7.19	7.38	<1.0	<1.0	5.5	5.8	--	3.2	7
SEP										
13...	17.7	6.04	6.16	2.1	2.3	5.7	6.1	--	.00	7

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
JAN										
19...	--	--	350	--	--	--	--	--	--	--
MAR										
03...	--	--	450	--	--	--	--	--	--	--
APR										
17...	--	--	409	--	--	--	--	--	--	--
JUN										
13...	11.5	42.8	377	38	<200	944	210	1230	392	415
AUG										
02...	8.7	59.7	423	28	<200	465	140	340	415	432
SEP										
13...	45.3	43.3	402	86	410	2480	370	3020	476	539

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

403853076222301 - MIDDLE CR MINE DISCHARGE, SITE E5, NR NEWTOWN, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
NOV											
15...	1330	80020	1028	2.1	18	1.9	5.3	4.9	260	10.5	12.0
FEB											
16...	1000	9813	1028	2.5	36	4.4	5.2	5.1	252	8.1	12.0
MAY											
16...	1515	9813	1028	4.0	18	1.9	4.9	--	290	10.9	--

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	ACIDITY (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
NOV											
15...	14.0	9.4	--	--	14.0	88.0	12	451	340	1900	960
FEB											
16...	13.0	8.8	36	6	12.0	83.0	15	126	470	2100	890
MAY											
16...	--	--	--	--	--	--	--	503	--	--	--

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
NOV											
15...	1315	80020	1028	2.1	77	8.5	5.6	5.2	257	10.5	13.0
DEC											
08...	1115	80020	1028	2.8	82	9.3	5.6	5.4	232	9.8	9.70
FEB											
16...	0945	9813	1028	2.5	87	10.0	5.4	5.3	249	7.9	12.0
APR											
19...	1200	9813	1028	8.3	78	8.8	5.4	5.2	246	10.0	11.4
MAY											
16...	1500	9813	1028	4.0	66	7.2	5.1	--	285	11.2	--
AUG											
03...	1130	9813	1028	2.7	82	8.7	5.3	5.1	252	12.3	12.8

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
NOV											
15...	--	14.0	--	--	--	8.9	--	--	--	--	--
DEC											
08...	--	11.0	--	--	--	9.1	--	29	--	4	--
FEB											
16...	--	13.0	--	--	--	9.1	--	20	--	10	--
APR											
19...	44.9	14.3	14.9	7.5	7.6	7.5	7.6	--	8.8	--	4
MAY											
16...	--	--	--	--	--	--	--	--	--	--	--
AUG											
03...	13.0	15.4	15.6	<1.0	1.3	9.3	9.9	--	4.8	--	4

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
NOV											
15...	13.0	87.0	20	421	--	330	--	1900	--	970	--
DEC											
08...	14.0	70.0	--	404	--	310	--	1700	--	730	--
FEB											
16...	12.0	82.0	20	122	--	370	--	1600	--	920	--
APR											
19...	9.9	95.9	--	453	8	702	966	1640	2470	901	923
MAY											
16...	--	--	--	485	--	--	--	--	--	--	--
AUG											
03...	13.0	95.5	--	385	46	608	2260	1250	4380	1040	1150

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

0157158010 - COAL RUN, SITE C4, NEAR TREMONT, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
20...	1045	9813	1028	1.6	98	10.9	6.9	--	237	10.3	17.1
DEC											
08...	1030	80020	1028	.30	99	11.7	6.6	7.0	245	8.1	15.8
APR											
19...	1115	9813	1028	4.5	89	10.1	6.6	6.2	197	9.6	11.5
AUG											
03...	1230	9813	1028	1.8	100	10.9	6.5	6.4	236	13.2	16.0

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
20...	17.1	14.9	14.9	--	--	6.6	6.8	.0	.00	--	17
DEC											
08...	--	12.0	--	--	--	6.8	--	9.1	--	16	--
APR											
19...	12.0	11.1	11.7	6.3	6.7	6.3	6.7	--	2.0	--	7
AUG											
03...	16.6	13.0	13.4	<1.0	<1.0	7.3	7.1	--	.00	--	17

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT										
20...	--	83.3	282	<2	<200	<200	<50	<50	<10	10
DEC										
08...	10.9	73.8	359	--	22	--	--	--	--	--
APR										
19...	8.6	70.9	363	<2	<200	358	--	--	--	--
AUG										
03...	9.6	78.0	317	22	<200	<200	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT										
20...	1790	1900	<1	<1	1090	1080	<50	<50	51	52
DEC										
08...	1520	--	--	--	968	--	--	--	--	--
APR										
19...	580	860	--	--	760	805	--	--	--	--
AUG										
03...	1950	2240	--	--	1160	1150	--	--	--	--

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
20...	1030	9813	1028	2.2	90	10.1	6.7	--	262	10.2	21.2
DEC											
08...	1045	80020	1028	2.2	90	10.7	6.7	6.9	268	7.9	17.8
APR											
19...	1130	9813	1028	5.9	87	9.8	6.4	6.4	214	10.0	14.3
AUG											
03...	1200	9813	1028	2.0	98	10.1	6.6	6.5	267	14.0	20.3

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
20...	21.7	15.9	16.4	--	--	5.9	6.1	.0	.00	--	26
DEC											
08...	--	12.4	--	--	--	6.2	--	15	--	18	--
APR											
19...	14.8	12.0	12.4	6.1	6.3	6.1	6.3	--	.00	--	14
AUG											
03...	20.1	14.7	14.5	<1.0	<1.0	6.8	6.9	--	.00	--	28

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT										
20...	--	90.3	315	<2	<200	<200	<50	<50	<10	<10
DEC										
08...	9.8	79.8	326	--	E10	--	--	--	--	--
APR										
19...	7.5	75.8	368	<2	<200	332	--	--	--	--
AUG										
03...	8.0	84.2	267	26	<200	<200	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT										
20...	2390	2740	<1	<1	1220	1270	<50	<50	41	39
DEC										
08...	1960	--	--	--	994	--	--	--	--	--
APR										
19...	640	1290	--	--	828	872	--	--	--	--
AUG										
03...	2370	2980	--	--	1290	1330	--	--	--	--

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
NOV											
15...	1415	80020	1028	.53	40	4.3	5.8	5.4	424	11.5	29.0
FEB											
16...	0915	9813	1028	.36	--	--	5.6	4.2	456	11.5	29.0
MAY											
16...	1430	9813	1028	.13	44	4.8	5.6	--	438	11.5	--

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	ACIDITY (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
NOV											
15...	21.0	2.6	--	--	2.4	170	20	279	110	23000	1400
FEB											
16...	22.0	2.5	73	24	2.6	170	25	125	140	24000	1600
MAY											
16...	--	--	--	--	--	--	--	349	--	--	--

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
20...	1205	9813	1028	1.0	99	11.0	5.3	--	205	10.7	11.7
DEC											
08...	1145	80020	1028	1.1	93	10.7	5.4	4.8	207	9.2	10.0
APR											
19...	1100	9813	1028	1.9	98	10.9	6.3	5.9	184	10.9	9.13
AUG											
03...	1100	9813	1028	.67	101	10.0	6.6	6.2	287	16.3	19.7

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
20...	11.9	9.06	9.57	--	--	8.9	9.3	--	8.2	--	2
DEC											
08...	--	8.88	--	--	--	7.2	--	11	--	1	--
APR											
19...	9.65	7.81	8.21	7.1	7.3	7.1	7.3	--	12	--	4
AUG											
03...	20.0	15.3	15.5	1.1	1.0	5.6	5.2	--	9.6	--	10

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT										
20...	--	71.4	486	<2	308	317	<50	<50	<10	11
DEC										
08...	12.0	67.2	443	--	200	--	--	--	--	--
APR										
19...	11.1	64.4	337	2	<200	328	--	--	--	--
AUG										
03...	7.3	106	220	20	<200	283	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT										
20...	1770	2060	<1	<1	784	829	<50	<50	59	50
DEC										
08...	1540	--	--	--	714	--	--	--	--	--
APR										
19...	5080	5600	--	--	711	751	--	--	--	--
AUG										
03...	9580	9910	--	--	1220	1210	--	--	--	--

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

0157156012 - MARTIN RUN, SITE C8, AT DONALDSON, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	OXIDATION REDUCTION POTENTIAL (MV) (00090)
OCT										
20...	1220	9813	1028	.01	96	10.7	5.4	207	10.6	432
APR										
19...	1055	9813	1028	.67	93	10.3	6.3	183	10.7	345
AUG										
03...	1055	9813	1028	.03	101	10.0	6.6	288	16.3	228

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
20...	1215	9813	1028	1.0	98	10.9	5.4	--	203	10.7	12.1
DEC											
08...	1130	80020	1028	1.1	95	11.0	5.5	5.1	207	9.0	10.1
APR											
19...	1045	9813	1028	1.9	100	11.3	6.3	5.9	182	10.7	9.78
AUG											
03...	1045	9813	1028	.67	100	9.9	6.6	6.2	286	16.3	20.9

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
20...	12.0	9.32	9.18	--	--	9.3	9.1	--	9.8	--	2
DEC											
08...	--	8.73	--	--	--	7.1	--	12	--	2	--
APR											
19...	9.92	8.43	8.43	7.0	7.4	7.0	7.4	--	13	--	4
AUG											
03...	20.7	16.0	15.9	1.2	1.2	5.8	5.6	--	9.6	--	10

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT										
20...	--	71.4	477	4	247	313	<50	<50	<10	<10
DEC										
08...	12.0	67.4	438	--	180	--	--	--	--	--
APR										
19...	11.1	63.1	354	6	<200	341	--	--	--	--
AUG										
03...	7.3	103	223	24	<200	276	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT										
20...	1790	2000	<1	<1	809	796	<50	<50	51	48
DEC										
08...	1390	--	--	--	687	--	--	--	--	--
APR										
19...	4900	5440	--	--	729	756	--	--	--	--
AUG										
03...	9020	9580	--	--	1240	1250	--	--	--	--

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
20...	1240	9813	1028	--	5	.6	5.9	--	544	11.0	40.3
NOV											
15...	1515	80020	1028	1.4	4	.5	5.9	5.6	633	11.0	45.0
DEC											
08...	1300	80020	1028	1.5	12	1.3	5.9	5.7	597	11.0	40.0
FEB											
16...	1430	9813	1028	1.6	5	.5	5.9	5.8	617	11.0	39.0
APR											
19...	1015	9813	1028	4.4	22	2.5	5.9	5.9	598	10.9	41.3
MAY											
16...	1100	9813	1028	3.4	7	.8	5.8	--	715	10.9	--
AUG											
03...	1030	9813	1028	2.2	5	.5	5.9	6.0	592	11.1	46.1

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
20...	42.7	42.9	45.3	--	--	5.5	5.7	--	.00	--	42
NOV											
15...	--	46.0	--	--	--	5.6	--	--	--	--	--
DEC											
08...	--	39.0	--	--	--	6.5	--	100	--	32	--
FEB											
16...	--	41.0	--	--	--	6.5	--	82	--	24	--
APR											
19...	44.2	49.0	51.1	6.7	7.1	6.7	7.1	--	.00	--	42
MAY											
16...	--	--	--	--	--	--	--	--	--	--	--
AUG											
03...	45.8	47.0	47.0	2.0	1.9	8.6	7.5	--	.00	--	54

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

403745076271901 - TRACY AIRHOLE, SITE E1-229, NEAR DONALDSON, PA--Continued

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

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
OCT											
20...	--	233	--	411	16	<200	<200	<50	<50	<10	<10
NOV											
15...	10.0	260	40	317	--	<15	--	--	--	--	--
DEC											
08...	12.0	230	--	349	--	<15	--	--	--	--	--
FEB											
16...	12.0	240	80	114	--	<15	--	--	--	--	--
APR											
19...	10.9	282	--	367	16	<200	<200	--	--	--	--
MAY											
16...	--	--	--	350	--	--	--	--	--	--	--
AUG											
03...	11.7	148	--	331	66	<200	<200	--	--	--	--

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
OCT										
20...	12200	16200	<1	<1	2390	2480	<50	50	49	29
NOV										
15...	16000	--	--	--	2700	--	--	--	--	--
DEC										
08...	13000	--	--	--	2400	--	--	--	--	--
FEB										
16...	15000	--	--	--	2600	--	--	--	--	--
APR										
19...	8340	12500	--	--	2310	2480	--	--	--	--
MAY										
16...	--	--	--	--	--	--	--	--	--	--
AUG										
03...	18600	20500	--	--	3000	2910	--	--	--	--

0157156210 - TRACY AIRHOLE, SITE E1-1, NEAR DONALDSON, PA

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

DATE	TIME	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)
NOV										
15...	1500	80020	1028	1.4	59	6.4	6.2	6.0	628	11.0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
NOV										
15...	44.0	43.0	5.6	9.8	260	200	322	E10	13000	2700

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
20...	1330	9813	1028	--	82	9.0	6.4	--	534	9.8	41.3
DEC											
08...	1245	80020	1028	1.5	75	8.2	6.3	6.1	592	11.0	38.0
FEB											
16...	1345	9813	1028	1.6	83	9.1	6.2	6.1	603	10.5	38.0
APR											
19...	1000	9813	1028	4.4	81	9.0	6.1	6.2	596	10.9	34.0
AUG											
03...	1015	9813	1028	2.2	91	9.9	6.3	6.3	596	11.5	45.3

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
20...	43.4	43.8	45.8	--	--	5.3	5.8	--	.00	--	40
DEC											
08...	--	39.0	--	--	--	6.6	--	48	--	31	--
FEB											
16...	--	39.0	--	--	--	6.7	--	68	--	24	--
APR											
19...	35.2	38.6	39.9	6.4	6.8	6.4	6.8	--	.00	--	34
AUG											
03...	44.1	46.2	45.2	1.9	2.2	6.9	8.0	--	.00	--	48

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT										
20...	--	237	342	10	<200	<200	<50	<50	<10	<10
DEC										
08...	12.0	220	354	--	<15	--	--	--	--	--
FEB										
16...	13.0	230	116	--	<15	--	--	--	--	--
APR										
19...	10.7	213	390	16	<200	<200	--	--	--	--
AUG										
03...	11.6	260	302	52	<200	<200	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT										
20...	9440	17800	<1	<1	2290	2480	<50	<50	26	28
DEC										
08...	12000	--	--	--	2400	--	--	--	--	--
FEB										
16...	13000	--	--	--	2500	--	--	--	--	--
APR										
19...	6070	8310	--	--	1760	1850	--	--	--	--
AUG										
03...	16500	20900	--	--	2660	3030	--	--	--	--

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
20...	1320	9813	1028	--	83	9.4	6.9	--	238	11.1	27.8
DEC											
08...	1230	80020	1028	1.2	89	11.4	6.8	6.8	211	4.8	20.3
FEB											
16...	1400	9813	1028	1.7	100	12.9	6.5	6.6	228	3.8	18.7
APR											
19...	0930	9813	1028	2.7	94	11.3	6.4	6.3	120	7.4	9.38
AUG											
03...	0945	9813	1028	.35	87	8.2	6.7	6.5	163	17.9	14.8

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
20...	28.4	12.2	12.4	--	--	3.8	3.9	.0	.00	--	38
DEC											
08...	--	7.94	--	--	--	4.7	--	5.9	--	31	--
FEB											
16...	--	7.41	--	--	--	9.8	--	6.8	--	40	--
APR											
19...	9.61	4.01	4.08	6.3	6.5	6.3	6.5	--	.00	--	11
AUG											
03...	14.7	6.15	6.05	1.1	1.1	5.4	5.2	.0	.00	--	22

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT										
20...	--	74.5	342	<2	<200	<200	<50	<50	12	10
DEC										
08...	7.0	55.4	348	--	49	--	--	--	--	--
FEB										
16...	16.9	49.3	122	--	60	--	--	--	--	--
APR										
19...	9.9	29.1	437	<2	<200	<200	--	--	--	--
AUG										
03...	8.2	34.4	365	28	<200	<200	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT										
20...	270	280	<1	<1	114	112	<50	<50	31	81
DEC										
08...	100	--	--	--	61	--	--	--	--	--
FEB										
16...	80	--	--	--	51	--	--	--	--	--
APR										
19...	80	100	--	--	52	52	--	--	--	--
AUG										
03...	140	260	--	--	127	118	--	--	--	--

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
20...	1315	9813	1028	3.3	86	9.6	6.5	--	440	10.6	37.4
DEC											
08...	1215	80020	1028	2.7	87	10.2	6.4	6.2	433	8.2	30.6
FEB											
16...	1415	9813	1028	3.4	91	10.7	6.3	6.3	442	7.3	30.1
APR											
19...	0945	9813	1028	7.0	92	10.4	6.2	6.2	489	10.0	41.8
AUG											
03...	1000	9813	1028	2.5	95	9.9	6.4	6.3	515	13.1	38.2

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
20...	38.7	34.1	35.2	--	--	5.1	5.1	--	.00	--	36
DEC											
08...	--	25.3	--	--	--	5.9	--	29	--	28	--
FEB											
16...	--	25.0	--	--	--	8.0	--	36	--	26	--
APR											
19...	42.1	49.6	49.8	6.6	6.8	6.6	6.8	--	.00	--	42
AUG											
03...	38.7	37.1	37.6	1.9	1.9	7.3	7.2	--	.00	--	40

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT										
20...	--	181	335	10	<200	<200	<50	<50	<10	<10
DEC										
08...	10.1	150	358	--	19	--	--	--	--	--
FEB										
16...	14.4	147	118	--	24	--	--	--	--	--
APR										
19...	11.0	278	363	18	<200	<200	--	--	--	--
AUG										
03...	10.9	206	306	42	<200	<200	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT										
20...	6600	8940	<1	<1	1650	1690	<50	<50	27	37
DEC										
08...	6610	--	--	--	1390	--	--	--	--	--
FEB										
16...	7260	--	--	--	1420	--	--	--	--	--
APR										
19...	8100	11400	--	--	2320	2350	--	--	--	--
AUG										
03...	12500	14900	--	--	2250	2290	--	--	--	--

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)
OCT												
20...	1115	9813	1028	18	96	10.8	6.9	--	281	10.2	21.8	22.8
DEC												
08...	0945	80020	1028	14	98	12.5	6.5	7.1	276	4.9	18.2	--
FEB												
16...	1530	9813	1028	21	103	12.7	6.7	6.5	303	5.6	19.8	--
APR												
18...	1230	9813	1028	44	98	10.9	6.1	6.1	247	8.3	9.14	9.55
MAY												
16...	1600	9813	1028	16	93	9.6	6.9	6.3	379	14.3	29.0	28.6
AUG												
03...	0900	9813	1028	8.1	100	9.7	6.6	--	332	17.2	--	--

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
OCT												
20...	17.5	18.2	--	--	7.8	7.9	.0	.00	--	11	--	112
DEC												
08...	13.1	--	--	--	7.8	--	6.8	--	9	--	12.2	89.6
FEB												
16...	12.8	--	--	--	12.2	--	11	--	10	--	22.3	85.4
APR												
18...	5.52	5.59	<1.0	<1.0	3.4	3.4	--	1.8	--	7	4.5	44.2
MAY												
16...	26.6	26.4	--	--	8.1	8.3	--	.00	--	12	10.6	137
AUG												
03...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT											
20...	--	--	--	--	371	<2	<200	315	<50	<50	<10
DEC											
08...	--	--	--	--	391	--	E8	--	--	--	--
FEB											
16...	--	--	--	--	108	--	E9	--	--	--	--
APR											
18...	--	--	--	--	381	10	<200	492	--	--	--
MAY											
16...	.05	.16	.10	<.010	66	<2	<200	367	<50	<50	<10
AUG											
03...	--	--	--	--	362	--	--	--	--	--	--

DATE	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT											
20...	<10	380	930	<1	<1	985	1010	<50	<50	60	65
DEC											
08...	--	660	--	--	--	805	--	--	--	--	--
FEB											
16...	--	840	--	--	--	792	--	--	--	--	--
APR											
18...	--	180	500	--	--	490	517	--	--	--	--
MAY											
16...	<10	790	2330	<1	<1	1150	1210	<50	<50	53	62
AUG											
03...	--	--	--	--	--	--	--	--	--	--	--

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

01571552 - SWATARA CREEK AT TREMONT, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
20...	1415	9813	1028	9.2	96	10.9	6.1	--	168	9.9	14.7
DEC											
08...	0900	80020	1028	12	93	12.0	6.5	7.6	159	4.6	12.4
JAN											
19...	0945	9813	1028	--	104	15.0	6.7	--	146	.3	14.8
APR											
18...	1245	9813	1028	27	92	10.5	6.5	6.1	132	7.7	14.7
AUG											
03...	0830	9813	1028	11	100	9.9	6.5	--	159	20.3	--

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
20...	15.2	7.51	7.72	--	--	3.6	3.5	--	2.2	--	4
DEC											
08...	--	6.18	--	--	--	4.4	--	6.8	--	27	--
JAN											
19...	14.6	6.95	6.83	1.0	<1.0	4.3	4.2	--	.00	--	12
APR											
18...	15.5	13.7	14.4	1.5	1.5	7.1	7.1	--	1.4	--	8
AUG											
03...	--	--	--	--	--	--	--	--	--	--	--

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
OCT										
20...	--	66.4	461	<2	<200	<200	<50	<50	<10	<10
DEC										
08...	5.8	49.2	382	--	34	--	--	--	--	--
JAN										
19...	6.0	57.4	269	6	<200	<200	--	--	--	--
APR										
18...	10.6	86.6	417	4	<200	497	--	--	--	--
AUG										
03...	--	--	412	--	--	--	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
OCT										
20...	210	260	<1	<1	875	904	<50	<50	64	66
DEC										
08...	80	--	--	--	586	--	--	--	--	--
JAN										
19...	170	320	--	--	581	575	--	--	--	--
APR										
18...	940	1550	--	--	762	771	--	--	--	--
AUG										
03...	--	--	--	--	--	--	--	--	--	--

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
19...	1245	80020	1028	4.0	98	10.9	6.8	6.2	477	10.2	33.7
DEC											
07...	0945	9813	1028	3.5	95	11.2	6.6	--	353	7.9	26.1
JAN											
20...	1100	9813	1028	--	93	12.4	6.5	--	429	3.6	40.0
MAR											
01...	1200	9813	1028	15	118	13.9	6.4	--	286	8.2	19.1
APR											
18...	0915	9813	1028	12	99	11.6	6.5	6.1	343	8.4	23.7
JUN											
19...	0945	9813	1028	10	95	9.9	6.6	6.3	289	13.3	24.1
AUG											
01...	1230	9813	1028	3.5	98	9.6	6.2	6.5	278	16.2	31.3
SEP											
14...	0915	9813	1028	3.2	97	10.4	6.9	6.3	346	12.4	32.3

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT										
19...	--	23.5	--	--	--	9.9	--	.0	--	--
DEC										
07...	27.3	17.4	18.1	1.8	2.0	10.4	10.8	--	.00	14
JAN										
20...	43.0	26.8	28.7	1.6	1.6	20.0	21.7	--	.00	28
MAR										
01...	19.5	14.2	14.2	1.1	1.0	14.2	14.7	--	2.6	8
APR										
18...	23.6	18.4	18.4	1.6	1.5	11.9	10.9	--	2.8	8
JUN										
19...	23.7	15.8	15.6	1.9	1.7	12.6	12.8	--	.00	15
AUG										
01...	30.2	19.6	20.3	2.0	2.0	15.3	16.4	--	.00	20
SEP										
14...	32.3	18.5	18.5	2.7	2.8	12.5	12.2	.0	.00	18

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
19...	13.3	190	326	--	E11	--	5060	--	2190	--
DEC										
07...	13.5	132	356	8	<200	376	2630	3560	1360	1420
JAN										
20...	13.9	179	76	22	<200	469	2060	4000	1250	1340
MAR										
01...	24.5	90.6	347	<2	<200	407	2600	3170	930	951
APR										
18...	17.9	122	348	8	<200	910	1970	2430	1310	1160
JUN										
19...	15.8	109	264	24	<200	737	1330	2660	1170	1160
AUG										
01...	16.9	139	320	22	<200	805	610	2720	1380	1500
SEP										
14...	14.6	137	231	76	<200	630	1240	3540	1390	1530

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)
OCT										
19...	1230	80020	1028	.01	87	10.1	6.7	7.4	464	9.1
DEC										
07...	0930	9813	1028	4.4	103	12.4	6.4	--	360	7.4
JAN										
20...	1045	9813	1028	--	94	12.7	6.2	--	411	2.7
MAR										
01...	1145	9813	1028	14	112	13.6	6.6	--	282	6.9
APR										
18...	0900	9813	1028	7.1	91	10.7	6.2	6.1	311	8.1
JUN										
19...	0930	9813	1028	6.3	96	7.9	6.2	6.3	288	14.2
AUG										
01...	1310	9813	1028	3.5	97	8.8	6.7	6.5	288	20.1
SEP										
14...	0900	9813	1028	3.0	96	9.9	6.5	6.5	320	13.5

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT										
19...	35.4	--	22.0	--	--	--	10.7	--	--	--
DEC										
07...	25.5	26.9	16.6	17.5	2.0	2.2	10.4	11.2	.00	12
JAN										
20...	35.9	39.4	25.0	27.3	1.5	1.5	17.5	19.0	.00	24
MAR										
01...	17.8	18.3	12.8	13.2	1.3	1.4	14.3	14.8	3.0	8
APR										
18...	23.5	24.2	17.7	18.1	1.6	1.6	12.0	12.7	2.4	8
JUN										
19...	24.2	24.2	15.1	15.0	1.8	2.0	12.4	12.2	.00	15
AUG										
01...	28.4	29.6	17.9	18.7	1.9	2.1	13.9	14.6	.00	19
SEP										
14...	29.5	30.7	15.4	15.7	3.3	3.2	14.8	15.0	.00	22

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
19...	14.1	176	405	--	E11	--	550	--	1640	--
DEC										
07...	5.4	142	394	<2	<200	<200	1190	2050	1260	1330
JAN										
20...	14.1	174	93	22	<200	504	1580	4030	1380	1380
MAR										
01...	26.4	86.0	276	<2	<200	315	2010	2440	868	863
APR										
18...	18.9	119	390	14	300	683	1730	2050	1120	1140
JUN										
19...	15.1	106	356	4	<200	330	590	1430	1100	1080
AUG										
01...	16.2	132	316	6	<200	673	110	2220	1220	1320
SEP										
14...	16.5	117	350	26	209	448	280	1160	1040	1100

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

01571772 - LORBERRY CR BL ROWE DRAINAGE TUNNEL NR JOLIETT, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	COLOR (PLATINUM-COBALT UNITS) (00080)	ALUMINUM, DIS-SOLVED (UG/L AS AL) (01106)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)
NOV												
16...	1330	80020	6.1	13.1	20.7	3.6	4.0	120	60	22	9370	2030

01571773 - LORBERRY CR DIV WELLS OUTFLOW NR LORBERRY, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
JUN											
19...	1400	9813	1028	1.6	73	7.8	5.2	--	306	12.1	--
AUG											
01...	0945	9813	1028	1.2	65	7.0	4.9	--	362	12.3	--
SEP											
14...	1115	9813	1028	1.8	90	9.6	3.9	4.1	543	12.4	27.0

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
JUN										
19...	--	--	--	--	--	--	--	--	--	--
AUG										
01...	--	--	--	--	--	--	--	--	--	--
SEP										
14...	26.3	46.7	46.0	1.5	1.6	5.1	4.5	42	0	0

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DIS-SOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
JUN										
19...	--	--	462	--	--	--	--	--	--	--
AUG										
01...	--	--	449	--	--	--	--	--	--	--
SEP										
14...	2.8	289	603	26	3060	3520	8350	8950	3380	3390

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

01571776 - STUMPS RUN AT LORBERRY, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)
OCT										
19...	1430	80020	1028	--	91	10.2	5.8	6.7	78	10.6
DEC										
07...	1230	9813	1028	1.2	92	11.0	5.8	--	72	8.1
JAN										
20...	1245	9813	1028	--	92	13.0	5.5	--	67	1.2
MAR										
01...	1445	9813	1028	1.2	100	12.5	6.2	--	51	5.9
APR										
18...	1130	9813	1028	1.1	74	8.7	5.8	5.3	61	7.8
JUN										
19...	1330	9813	1028	--	99	10.1	5.8	5.8	56	14.7
AUG										
01...	1015	9813	1028	8.3	94	9.2	5.7	5.8	65	16.3
SEP										
14...	1045	9813	1028	.85	92	9.4	5.8	4.4	51	14.2

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT										
19...	6.45	--	4.46	--	--	--	.8	--	--	--
DEC										
07...	4.76	4.90	3.20	3.30	1.2	1.5	.9	.8	2.0	4
JAN										
20...	4.29	4.36	3.02	3.07	<1.0	<1.0	.7	.6	1.8	4
MAR										
01...	4.17	4.05	2.71	2.55	<1.0	<1.0	.6	.7	.20	3
APR										
18...	4.17	4.43	2.79	2.97	<1.0	<1.0	.7	.6	2.8	3
JUN										
19...	3.95	4.28	2.75	2.97	<1.0	<1.0	.7	.9	1.6	4
AUG										
01...	4.61	4.27	3.11	2.76	<1.0	<1.0	.8	.7	2.0	4
SEP										
14...	27.6	26.8	45.7	44.7	1.8	1.6	4.7	4.7	36	0

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
19...	.3	69.5	329	--	95	--	1000	--	221	--
DEC										
07...	<.5	48.7	429	<2	<200	<200	20	40	83	87
JAN										
20...	.7	24.8	95	12	<200	<200	140	220	80	93
MAR										
01...	.6	20.0	336	<2	<200	<200	90	100	86	76
APR										
18...	.6	21.9	439	<2	<200	<200	80	550	94	126
JUN										
19...	.7	20.2	431	12	<200	<200	80	350	131	160
AUG										
01...	.8	20.5	409	<2	<200	<200	140	110	196	168
SEP										
14...	2.8	280	388	24	2710	3400	6890	8170	3140	3240

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
19...	1415	80020	1028	.05	35	3.6	3.5	3.5	2220	13.0	150
20...	1440	9813	1028	--	39	4.2	3.1	--	2040	12.0	--
NOV											
15...	1545	80020	1028	.01	16	1.6	3.5	3.6	1920	13.0	150
DEC											
07...	1000	9813	1028	.02	18	1.9	3.6	--	2110	13.0	140
JAN											
20...	1230	9813	1028	.05	14	1.4	3.6	--	1890	13.0	181
FEB											
16...	1030	9813	1028	.20	5	.6	2.9	3.0	2040	13.0	150
APR											
18...	0930	9813	1028	.03	32	3.3	3.6	3.7	2100	13.1	145
MAY											
16...	0900	9813	1028	.20	20	2.0	3.4	--	2080	12.0	--
JUN											
19...	1000	9813	1028	.03	4	.5	3.6	3.7	1550	13.1	173
AUG											
01...	1030	9813	1028	.02	10	1.0	3.5	3.7	1140	13.2	153
SEP											
14...	1030	9813	1028	.20	8	.8	3.7	3.9	1780	13.2	149

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT											
19...	--	86.0	--	--	--	1.8	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	0	--
NOV											
15...	--	84.0	--	--	--	1.8	--	--	--	0	--
DEC											
07...	142	85.2	90.8	2.2	2.2	2.5	2.5	--	742	0	0
JAN											
20...	167	112	113	1.6	1.9	1.9	1.7	--	642	0	0
FEB											
16...	--	83.0	--	--	--	1.8	--	640	--	0	--
APR											
18...	153	105	115	2.0	2.2	2.3	2.3	--	682	0	0
MAY											
16...	--	--	--	--	--	--	--	--	--	--	--
JUN											
19...	172	119	127	2.3	2.0	2.2	2.0	--	728	0	0
AUG											
01...	159	113	114	2.6	2.2	1.8	1.7	--	600	0	0
SEP											
14...	154	89.8	100	2.5	2.6	2.0	1.9	--	532	0	0

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

403521076260601 - SHADLE MINE SHAFT AT LORBERRY, PA--Continued

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

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (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)
OCT											
19...	<.3	1300	--	333	--	20000	--	300000	--	17000	--
20...	--	--	--	597	--	--	--	--	--	--	--
NOV											
15...	<.3	1400	5	348	--	14000	--	310000	--	16000	--
DEC											
07...	.6	1940	--	322	8	12600	12900	327000	348000	16100	16400
JAN											
20...	.6	1550	--	52	82	13400	14000	382000	392000	20700	18900
FEB											
16...	<.3	1300	8	161	--	11000	--	290000	--	15000	--
APR											
18...	<2.5	1580	--	347	20	9170	9610	346000	376000	17000	17900
MAY											
16...	--	--	--	557	--	--	--	--	--	--	--
JUN											
19...	.7	1710	--	352	12	10100	10300	359000	384000	14800	15200
AUG											
01...	1.6	1790	--	301	<2	9580	9350	293000	345000	15300	15900
SEP											
14...	.7	1460	--	327	<2	8100	8800	264000	273000	13600	14000

0157177680 - SHADLE MINE DRAINAGE, 250 FT BL SHAFT, NR LORBERRY, PA

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

DATE	TIME	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
NOV											
15...	1600	80020	1028	.00	16	1.9	3.0	2.8	2210	8.2	160
FEB											
16...	1015	9813	1028	.20	31	3.6	3.5	--	2020	7.7	--
MAY											
16...	0930	9813	1028	.20	18	1.9	3.0	--	2140	13.4	--

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	ACIDITY (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
NOV											
15...	91.0	1.8	--	0	<.3	1400	160	565	15000	260000	17000
FEB											
16...	--	--	590	0	--	--	--	529	--	--	--
MAY											
16...	--	--	--	--	--	--	--	641	--	--	--

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

01571777 - LORBERRY CR AB PANTHER HEAD DISCH NR LORBERRY JUNCTION, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
19...	1330	80020	1028	5.3	97	10.7	4.8	4.5	396	11.2	19.6
DEC											
07...	1145	9813	1028	5.2	94	10.4	6.1	--	299	10.4	15.0
JAN											
20...	1145	9813	1028	--	94	11.0	5.6	--	256	8.3	16.1
MAR											
01...	1415	9813	1028	10	96	11.0	5.3	--	225	9.3	12.2
APR											
18...	1045	9813	1028	13	84	9.3	4.6	4.5	268	10.4	12.0
JUN											
19...	1245	9813	1028	8.5	92	9.8	4.6	4.8	272	12.7	14.3
AUG											
01...	1045	9813	1028	3.4	100	10.3	5.3	5.7	335	13.7	22.1
SEP											
14...	0945	9813	1028	3.8	97	10.3	4.2	4.4	433	12.4	24.4

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT										
19...	--	24.5	--	--	--	3.4	--	--	--	--
DEC										
07...	15.6	18.6	19.4	1.0	1.3	3.4	3.4	14	--	4
JAN										
20...	16.7	22.0	23.0	1.0	1.0	3.2	3.2	16	--	3
MAR										
01...	12.7	15.8	16.2	<1.0	<1.0	3.0	3.0	15	--	2
APR										
18...	11.8	19.7	19.5	<1.0	<1.0	2.8	2.8	17	--	0
JUN										
19...	14.1	20.9	20.8	1.1	<1.0	3.2	3.1	18	--	2
AUG										
01...	22.1	23.1	23.1	1.2	1.2	3.1	3.2	13	--	3
SEP										
14...	24.7	36.2	37.2	1.6	1.5	4.7	4.2	34	0	0

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
19...	3.5	168	479	--	1220	--	5460	--	2460	--
DEC										
07...	3.1	139	384	10	<200	1280	5020	6390	1900	1930
JAN										
20...	2.9	117	94	16	<200	1160	4880	6340	1870	1870
MAR										
01...	3.6	94.8	419	<2	398	1590	4050	5930	1300	1330
APR										
18...	2.6	117	479	6	1040	1230	3450	5120	1610	1590
JUN										
19...	2.5	132	491	20	524	1550	4640	6880	1940	1940
AUG										
01...	2.7	150	332	24	230	1880	7870	8280	2390	2390
SEP										
14...	2.5	230	555	40	2580	2930	6080	8000	2700	2760

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

0157177780 - PANTHER HEAD DISCH TO LORBERRY CR NR LORBERRY JUNCTION, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
19...	1345	80020	1028	.02	70	7.6	3.1	3.0	531	11.4	20.0
DEC											
07...	1200	9813	1028	.04	79	9.2	3.3	--	445	8.9	9.78
JAN											
20...	1200	9813	1028	--	81	10.6	3.3	--	422	4.1	8.50
MAR											
01...	1400	9813	1028	.45	95	11.6	3.3	--	358	6.7	6.36
APR											
18...	1100	9813	1028	.21	70	8.3	3.2	3.3	283	8.0	8.30
JUN											
19...	1300	9813	1028	.09	69	7.4	3.1	3.3	405	12.2	8.50
AUG											
01...	1100	9813	1028	.01	63	6.4	3.0	3.2	535	14.5	14.3
SEP											
14...	1000	9813	1028	.01	60	6.7	3.2	3.4	522	14.2	19.6

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT										
19...	--	17.1	--	--	--	1.3	--	--	0	--
DEC										
07...	9.96	9.91	10.2	<1.0	<1.0	1.3	1.3	82	0	0
JAN										
20...	8.25	9.11	9.06	<1.0	<1.0	1.1	.9	86	0	0
MAR										
01...	6.51	6.63	6.77	<1.0	<1.0	.9	.9	62	0	0
APR										
18...	8.64	8.66	8.85	<1.0	<1.0	1.0	1.0	92	0	0
JUN										
19...	8.19	9.17	8.80	<1.0	<1.0	1.1	1.0	82	0	0
AUG										
01...	13.7	13.5	13.1	<1.0	1.1	1.2	1.2	106	0	0
SEP										
14...	21.3	15.6	17.1	1.2	1.2	1.7	1.6	122	0	0

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
19...	1.0	269	566	--	24100	--	3920	--	4670	--
DEC										
07...	1.1	208	514	4	7930	8350	1510	1510	2350	2380
JAN										
20...	1.0	203	145	22	7760	8040	2180	2860	1860	1890
MAR										
01...	1.0	160	553	<2	4750	4840	1300	1330	1280	1310
APR										
18...	1.1	262	550	<2	6840	7080	2930	3290	1570	1620
JUN										
19...	1.0	236	576	14	6870	7140	2590	3180	1740	1740
AUG										
01...	1.1	298	528	<2	9670	9880	2530	2460	2580	2620
SEP										
14...	1.1	312	748	32	12800	15700	2100	2920	3750	4360

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)
OCT										
19...	1400	80020	1028	.63	90	10.1	5.1	6.1	22	10.3
DEC										
07...	1215	9813	1028	1.5	91	11.1	5.1	--	23	6.8
JAN										
20...	1215	9813	1028	--	91	12.9	5.1	--	20	1.1
MAR										
01...	1345	9813	1028	6.0	100	11.5	4.8	--	23	3.4
APR										
18...	1115	9813	1028	5.3	74	8.8	4.8	4.9	22	8.0
JUN										
19...	1315	9813	1028	3.1	88	8.9	4.8	5.1	18	15.3
AUG										
01...	1115	9813	1028	1.5	87	8.3	4.7	5.0	21	17.8
SEP										
14...	1015	9813	1028	1.0	89	8.9	4.9	4.9	17	15.6

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT										
19...	1.24	--	.72	--	--	--	.7	--	--	--
DEC										
07...	1.40	1.40	.79	.69	<1.0	<1.0	.8	.8	5.4	3
JAN										
20...	.96	.89	.84	.55	<1.0	<1.0	.7	.7	5.6	3
MAR										
01...	1.00	1.00	.62	.63	<1.0	<1.0	.5	.6	3.6	1
APR										
18...	1.04	.97	.64	.57	<1.0	<1.0	.7	.7	2.8	2
JUN										
19...	.90	.80	.58	.49	<1.0	<1.0	.6	.6	8.8	2
AUG										
01...	1.31	.94	.69	.47	<1.0	<1.0	.8	.7	11	3
SEP										
14...	1.45	1.08	.78	.53	<1.0	<1.0	.9	.7	15	2

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
19...	1.0	17.1	477	--	247	--	110	--	65	--
DEC										
07...	1.2	19.5	447	<2	<200	<200	120	120	105	79
JAN										
20...	1.1	4.3	100	10	<200	<200	90	70	35	21
MAR										
01...	1.0	5.8	441	<2	<200	<200	80	90	39	41
APR										
18...	.9	4.5	454	8	<200	<200	210	200	44	28
JUN										
19...	1.0	3.0	475	16	276	269	380	490	52	38
AUG										
01...	1.1	2.1	445	<2	399	301	660	650	90	55
SEP										
14...	1.4	3.1	568	26	450	297	620	630	98	56

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)
OCT										
19...	1145	80020	1028	6.2	81	9.0	6.2	5.6	329	10.6
DEC										
07...	0900	9813	1028	6.3	103	12.0	6.1	--	255	8.7
JAN										
20...	1030	9813	1028	--	94	11.9	5.8	--	215	5.2
MAR										
01...	1130	9813	1028	18	116	14.2	5.6	--	157	6.9
APR										
18...	0830	9813	1028	113	96	11.3	6.0	6.0	162	8.1
JUN										
19...	0900	9813	1028	13	92	9.2	6.1	6.2	163	15.1
AUG										
01...	1345	9813	1028	7.5	94	8.6	6.6	5.9	192	19.7
SEP										
14...	0845	9813	1028	7.6	97	10.3	5.1	4.8	321	12.6

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT										
19...	20.5	--	17.9	--	--	--	6.2	--	--	--
DEC										
07...	13.2	13.5	14.6	15.0	1.0	1.1	3.9	3.9	13	4
JAN										
20...	14.1	14.1	17.9	18.0	<1.0	<1.0	3.3	3.3	11	4
MAR										
01...	8.42	8.34	8.70	8.68	<1.0	<1.0	3.2	3.2	12	3
APR										
18...	9.50	9.20	7.36	7.20	<1.0	<1.0	4.6	4.5	.80	7
JUN										
19...	11.6	11.9	8.62	8.80	1.0	1.0	5.0	5.1	.20	8
AUG										
01...	16.6	17.0	15.2	15.5	<1.0	<1.0	4.6	4.7	7.8	6
SEP										
14...	19.9	20.2	25.1	25.9	1.5	1.5	5.7	5.6	24	2

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
19...	8.0	126	403	--	69	--	3010	--	1180	--
DEC										
07...	4.2	115	407	<2	<200	1120	3120	5190	1360	1440
JAN										
20...	3.4	105	110	20	<200	1050	3570	5100	1430	1480
MAR										
01...	4.5	64.1	352	<2	270	965	2300	3250	788	792
APR										
18...	7.1	53.8	423	8	<200	349	280	780	417	406
JUN										
19...	7.3	57.8	380	16	<200	379	130	920	467	528
AUG										
01...	5.5	98.0	315	18	<200	1020	1400	3790	1380	1400
SEP										
14...	5.1	163	394	30	1470	2020	3330	4810	1800	1870

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 1999 TO SEPTEMBER 2000

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
19...	1130	80020	1028	--	95	11.1	6.7	6.5	237	8.6	16.8
DEC											
07...	0845	9813	1028	--	98	11.9	6.4	--	176	7.0	11.9
JAN											
20...	1015	9813	1028	--	92	13.5	6.2	--	162	.1	13.0
MAR											
01...	1115	9813	1028	--	109	14.0	6.6	--	138	4.9	9.13
APR											
18...	0845	9813	1028	20	89	10.7	5.5	4.8	228	9.2	10.9
JUN											
19...	0915	9813	1028	--	95	10.0	5.4	4.9	217	13.1	11.8
AUG											
01...	1400	9813	1028	42	99	9.8	6.5	6.2	258	15.8	13.0
SEP											
14...	0830	9813	1028	89	96	9.9	6.9	6.2	176	14.0	15.0

DATE	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT										
19...	--	10.5	--	--	--	6.1	--	--	--	--
DEC										
07...	12.1	7.66	8.10	1.1	1.2	5.2	5.5	--	.00	8
JAN										
20...	13.2	8.09	8.54	<1.0	<1.0	5.0	5.1	--	.00	11
MAR										
01...	8.72	6.00	5.67	<1.0	<1.0	6.1	5.8	--	.00	7
APR										
18...	10.6	14.0	14.1	<1.0	<1.0	4.8	4.7	--	11	2
JUN										
19...	11.6	15.8	15.7	<1.0	1.1	4.1	4.0	--	15	2
AUG										
01...	13.3	8.86	9.07	1.3	<1.0	4.4	4.6	--	.40	8
SEP										
14...	15.3	9.41	9.51	1.7	1.6	5.4	5.3	.0	.00	10

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	IRON, DISSOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
OCT										
19...	10.1	77.9	419	--	<15	--	80	--	671	--
DEC										
07...	7.6	58.0	398	<2	<200	<200	80	300	466	491
JAN										
20...	6.9	62.4	111	12	<200	237	280	670	476	515
MAR										
01...	10.2	39.5	314	<2	<200	337	270	640	388	358
APR										
18...	5.6	89.2	457	4	532	800	1650	2820	902	909
JUN										
19...	4.2	96.3	429	12	344	1130	2620	4250	1380	1370
AUG										
01...	6.5	60.1	299	<2	<200	261	160	480	377	404
SEP										
14...	7.1	61.4	347	24	<200	277	350	550	413	451

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

01572010 - SWATARA CR BL SR 645 HWY BRIDGE AT PINE GROVE, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)
OCT												
18...	1115	80020	1028	133	98	10.5	7.0	6.7	159	11.9	13.6	--
DEC												
06...	0930	80020	1028	140	96	11.4	6.6	7.6	151	7.8	11.5	--
JAN												
19...	0845	9813	1028	135	102	14.9	6.1	--	137	.0	12.1	12.3
MAR												
03...	0900	9813	1028	--	101	12.9	6.5	--	148	5.1	8.44	8.47
APR												
17...	0930	9813	1028	290	101	10.9	6.6	6.4	154	11.7	9.87	9.89
MAY												
22...	1300	9813	1028	--	--	--	6.4	6.4	124	--	10.7	9.52
24...	1000	9813	1028	--	--	--	6.6	6.5	114	--	7.46	8.07
JUN												
05...	1230	9813	1028	--	100	10.2	6.9	6.4	177	15.6	9.72	9.75
06...	1315	9813	1028	--	96	9.9	6.7	6.3	122	13.9	8.33	8.87
07...	1415	9813	1028	--	101	10.0	7.0	--	135	16.3	--	--
13...	1545	9813	1028	206	99	9.5	7.0	6.4	154	17.2	11.3	1.20
AUG												
02...	0945	9813	1028	720	100	9.1	6.7	6.3	100	20.2	7.42	7.78
SEP												
13...	1000	9813	1028	260	98	9.1	7.0	6.4	144	19.1	11.6	12.6

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
OCT												
18...	8.54	--	--	--	6.8	--	.0	--	--	--	9.1	52.4
DEC												
06...	6.96	--	--	--	5.5	--	4.1	--	15	--	7.4	46.5
JAN												
19...	7.91	8.01	1.1	1.1	6.0	6.0	--	.00	--	12	7.6	50.9
MAR												
03...	6.09	6.01	1.1	1.2	5.8	5.6	--	.00	--	8	8.3	39.3
APR												
17...	7.59	7.57	--	--	4.8	4.9	--	3.6	--	8	--	47.3
MAY												
22...	6.74	5.84	--	--	5.2	4.6	--	.00	--	13	6.9	40.8
24...	4.13	4.59	--	--	4.1	4.3	--	.00	--	13	5.9	24.8
JUN												
05...	6.94	6.95	--	--	5.3	5.5	--	.00	--	11	6.5	40.7
06...	4.76	5.12	--	--	5.1	5.1	--	.20	--	13	6.9	32.8
07...	--	--	--	--	--	--	--	--	--	--	--	--
13...	7.01	7.03	1.3	1.3	5.5	5.6	.0	.00	--	13	7.0	46.0
AUG												
02...	3.75	3.98	2.4	2.8	3.3	3.2	--	.40	--	15	4.6	17.5
SEP												
13...	5.17	6.13	2.2	3.6	4.7	4.7	.0	8.0	--	14	31.6	33.3

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

01572010 - SWATARA CR BL SR 645 HWY BRIDGE AT PINE GROVE, PA--Continued

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

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT											
18...	--	--	--	--	354	--	20	--	--	--	--
DEC											
06...	--	--	--	--	410	--	E13	--	--	--	--
JAN											
19...	--	--	--	--	432	<2	<200	225	--	--	--
MAR											
03...	--	--	--	--	375	16	<200	242	--	--	--
APR											
17...	<.02	1.1	.64	.020	343	18	<200	349	<50	<50	<10
MAY											
22...	.02	1.0	.71	.030	--	<2	230	<200	<50	<50	<10
24...	.03	1.4	.85	.050	--	44	<200	1720	<50	<50	<10
JUN											
05...	<.02	1.3	.92	.030	459	10	<200	241	<50	<50	<10
06...	.02	1.0	.54	.100	464	80	<200	3000	<50	<50	<10
07...	--	--	--	--	380	--	--	--	--	--	--
13...	--	--	--	--	317	12	<200	238	--	--	--
AUG											
02...	--	--	--	--	393	70	<200	2470	--	--	--
SEP											
13...	--	--	--	--	418	176	239	10200	--	--	--

DATE	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
OCT											
18...	--	110	--	--	--	366	--	--	--	--	--
DEC											
06...	--	70	--	--	--	331	--	--	--	--	--
JAN											
19...	--	340	650	--	--	438	438	--	--	--	--
MAR											
03...	--	680	1170	--	--	491	486	--	--	--	--
APR											
17...	<10	210	950	<1	2	404	418	<50	<50	49	54
MAY											
22...	<10	640	90	<1	<1	332	258	<50	<50	31	24
24...	<10	90	2980	<1	2	183	334	<50	<50	10	39
JUN											
05...	<10	90	560	<1	<1	290	302	<50	<50	24	22
06...	10	150	7720	<1	4	266	504	<50	<50	20	57
07...	--	--	--	--	--	--	--	--	--	--	--
13...	--	120	660	--	--	354	373	--	--	--	--
AUG											
02...	--	270	2940	--	--	158	279	--	--	--	--
SEP											
13...	--	350	22600	--	--	218	789	--	--	--	--

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

403650076330701 - VALLEY VIEW TUNNEL NEAR VALLEY VIEW, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
NOV											
16...	0945	80020	1028	2.3	62	6.7	6.0	5.9	235	11.0	14.0
FEB											
15...	1430	9813	1028	2.5	60	6.5	6.2	5.8	225	11.0	13.0
MAY											
16...	1115	9813	1028	5.1	95	10.4	6.1	--	256	11.4	--

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	ACIDITY (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
NOV											
16...	14.0	.9	--	--	.5	77.0	15	352	70	17000	2000
FEB											
15...	14.0	.8	23	14	.8	79.0	20	107	34	16000	1900
MAY											
16...	--	--	--	--	--	--	--	307	--	--	--

403709076330201 - MARKSON COLUMWAY NEAR VALLEY VIEW, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
NOV											
16...	1030	80020	1028	--	4	.4	3.5	3.2	750	11.0	48.0
FEB											
15...	1415	9813	1028	2.1	4	.4	3.4	3.1	671	11.0	45.0
MAY											
16...	1130	9813	1028	7.7	68	7.5	3.3	--	739	10.8	--

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	ACIDITY (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
NOV											
16...	44.0	2.4	--	0	2.2	370	5	520	2500	16000	5800
FEB											
15...	41.0	2.5	110	0	2.2	340	10	137	2100	17000	5200
MAY											
16...	--	--	--	--	--	--	--	698	--	--	--

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

403619076310501 - PORTER TUNNEL NEAR TOWER CITY, PA

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

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
NOV											
16...	0915	80020	1028	1.4	89	9.6	3.1	3.0	1030	11.0	47.0
FEB											
15...	1445	9813	1028	1.3	92	10.0	3.0	3.0	918	10.0	43.0
MAY											
16...	1015	9813	1028	2.2	97	10.6	3.1	--	970	11.3	--

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	ACIDITY (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXIDATION REDUCTION POTENTIAL (MV) (00090)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
NOV											
16...	59.0	6.5	--	0	15.0	470	20	584	6000	18000	5200
FEB											
15...	52.0	6.0	100	0	18.0	420	40	178	4600	20000	4800
MAY											
16...	--	--	--	--	--	--	--	712	--	--	--