

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

**EVALUATION OF LIMESTONE TREATMENT OF ACIDIC MINE DRAINAGE
IN SWATARA CREEK BASIN, SCHUYLKILL COUNTY, PENNSYLVANIA**

Acidic mine drainage (AMD) from abandoned anthracite mines has degraded water resources in the 48 mi² northern Swatara Creek Basin. To neutralize the AMD, with a goal of remediating approximately 25 miles (67 percent) of degraded streams in the basin, a variety of limestone treatment systems 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).

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

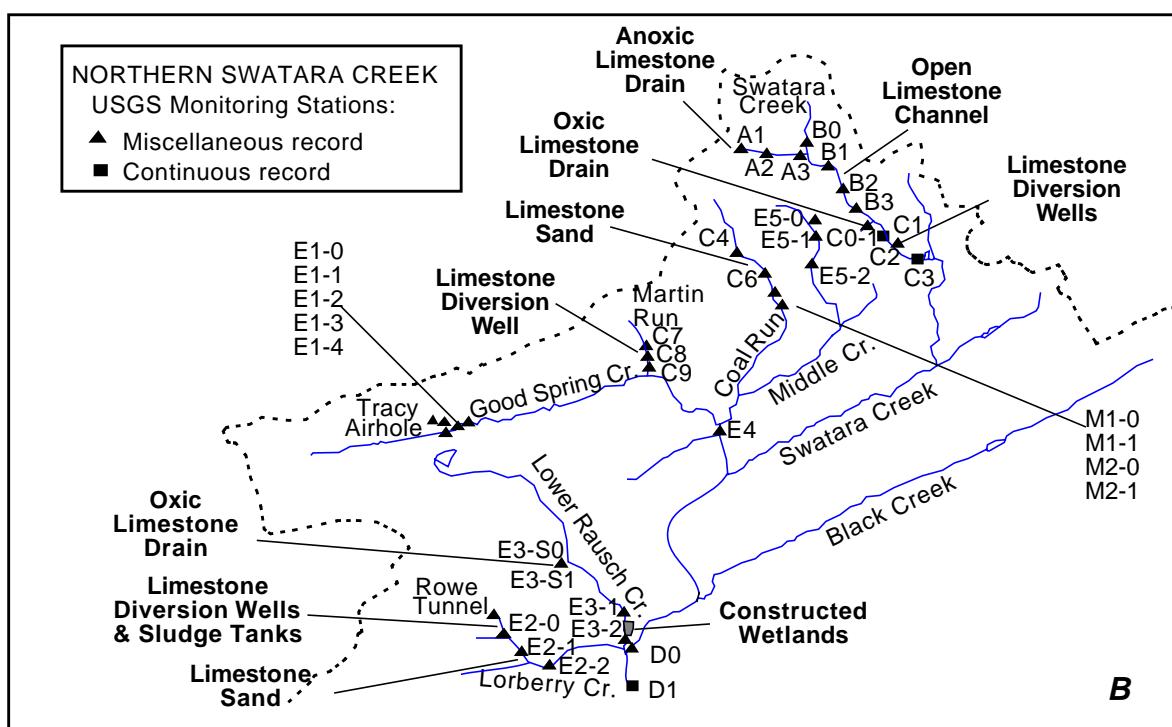
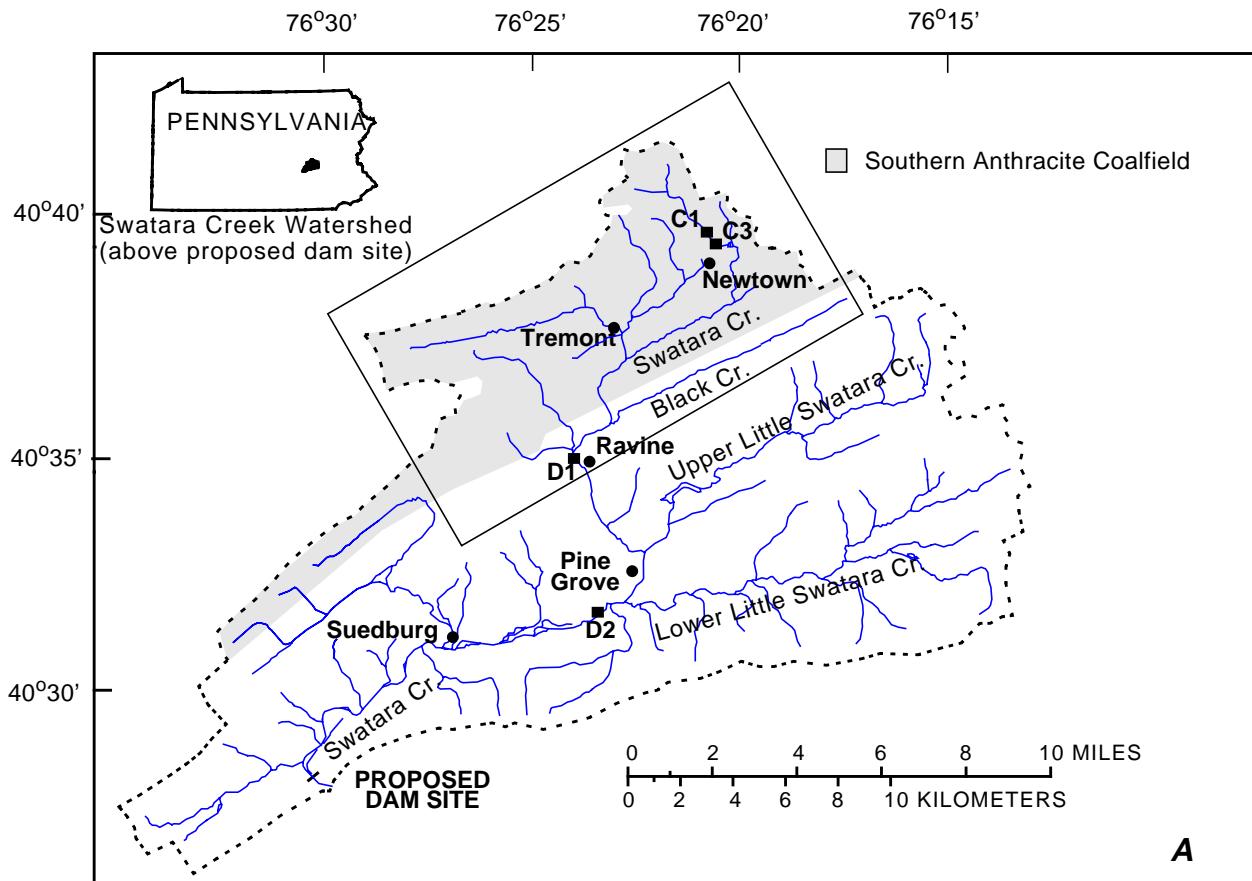


Figure 9. Locations of water-quality and streamflow monitoring stations in the Swatara Creek Basin, Lebanon and Schuylkill Counties, Pennsylvania: A, continuous monitoring stations on Swatara Creek above the proposed dam for Swatara State Park Reservoir; B, monitoring stations within the Southern Anthracite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

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

TABLE 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 LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA	40°35'42"	76°26'32"	n.a.
E2-0	01571774	LORBERRY CREEK ABOVE TR625 BRIDGE NEAR LORBERRY JUNCTION, PA	40°35'32"	76°26'22"	1.15
E2-1	01571778	LORBERRY CREEK NEAR PINE GROVE, 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 TRIBUTARY TO SWATARA CREEK, SITE A2, AT ALD OUTFLOW, NEAR NEWTOWN, PA	40°40'32"	76°22'25"	.25
A3	0157154972	NORTHWEST TRIBUTARY TO SWATARA CREEK, SITE A3, 1500 FT BELOW ALD, NEAR NEWTOWN, PA	40°40'32"	76°21'59"	.40
B0	0157154960	SWATARA CREEK, ABOVE NORTHWEST TRIBUTARY, SITE B0, NEAR NEWTOWN, PA	40°40'34"	76°21'57"	1.14
B1	0157154980	SWATARA CREEK, BELOW NORTHWEST TRIBUTARY, SITE B1, 50 FT ABOVE OLC, NEAR NEWTOWN, PA	40°40'22"	76°21'41"	1.75
B3	0157154984	SWATARA CREEK, BELOW NORTHWEST TRIBUTARY, SITE B3, 400 FT BELOW OLC, NEAR NEWTOWN, PA	40°40'22"	76°21'36"	1.90
C0-1	403955076211801	HEGINS MINE DISCHARGE, SITE C0-1, AT NEWTOWN, PA	40°39'55"	76°21'18"	n.a.
	403955076211802	HEGINS MINE DISCHARGE, TREATED, AT NEWTOWN, PA	40°39'55"	76°21'18"	n.a.
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	AGENCY	DIS-CHARGE,	OXYGEN,	PH	PH	SPE-	CALCIUM			
		ANA-LYZING	COL-LECTING	INST.	SOLVED	WATER	WATER	CIFIC				
		(CODE NUMBER)	(CODE NUMBER)	FEET	PER-CENT	SATUR-ATION)	OXYGEN,	FIELD	LAB	CON-DUCT-ANCE	WATER	(MG/L AS CA)
		(00028)	(00027)	(00061)	(00301)	(00300)	(00300)	(STAND-ARD)	(STAND-ARD)	(US/CM)	(00010)	(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	MAGNE-SIUM, TOTAL	POTAS-SIUM, TOTAL	POTAS-SIUM, TOTAL	SODIUM, TOTAL	SODIUM, TOTAL	ACIDITY	ANC WATER	ANC WATER		
		ERABLE AS CA) (00916)	SOLVED AS MG) (00925)	DIS- RECov- ERABLE (MG/L AS MG) (00927)	RECOV- ERABLE (MG/L AS MG) (00935)	DIS- RECov- ERABLE (MG/L AS K) (00937)	RECOV- ERABLE (MG/L AS NA) (00930)	ACIDITY (MG/L AS CACO3) (00435)	TOTAL HEATED (MG/L AS CACO3) (70508)	UNFLTRD FET FIELD AS CACO3 (00410)	UNFLTRD FET FIELD 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		CHLO- RIDE,	SULFATE	OXID- ATION	RESIDUE	ALUM- INUM,	IRON,	MANGA- NESE,	MANGA- NESE,	MANGA- NESE,		
		SOLVED (MG/L AS CL) (00940)	SOLVED (MG/L AS SO4) (00945)	RED- DIS- UTION	TOTAL DEG. C.	INUM, DIS- PENDED	RECOV- ERABLE (UG/L AS AL) (01105)	IRON, DIS- RECOV- ERABLE (UG/L AS FE) (01046)	TOTAL RECOV- ERABLE (UG/L AS MN) (01045)	TOTAL RECOV- ERABLE (UG/L AS MN) (01056)	TOTAL RECOV- ERABLE (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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA- LYZING SAMPLE (CODE NUMBER) (00028)	COL- LECTING SAMPLE (CODE NUMBER) (00027)	CHARGE, INST.	DIS- SOLVED (PER- CENT)	WATER	WATER	CIFIC			
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
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DATE		CALCIUM	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00925)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00935)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CACO ₃) (00435)	ANC WATER UNFLTRD FET FIELD LAB MG/L AS CACO ₃ (00410)	ANC WATER UNFLTRD FET LAB MG/L AS CACO ₃ (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
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DATE		CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO ₄) (00945)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	RESIDUE TOTAL DEG. C. PENDED (MG/L AS AL) (00530)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01105)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	IRON, DIS- SOLVED (UG/L AS MN) (01045)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA- LYZING SAMPLE (CODE NUMBER) (00028)	COL- LECTING SAMPLE (CODE NUMBER) (00027)	CHARGE, INST. FEET SECOND (00061)	DIS- CUBIC CENT PER- ATION) (00301)	SOLVED CENT DIS- SATUR- ATION) (00300)	WATER WHOLE FIELD DIS- SOLVED (MG/L) (00400)	WATER WHOLE LAB FIELD ARD (STAND- ARD UNITS) (00403)	CIFIC CON- DUCT- ANCE (US/CM) (00095)		
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
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DATE		CALCIUM	MAGNE-	MAGNE-	POTAS-	SODIUM,	ACIDITY	ANC	ANC		
		TOTAL RECOV- ERABLE (MG/L (AS CA) (00916)	TOTAL DIS- RECOV- ERABLE (MG/L (AS MG) (00925)	TOTAL DIS- RECOV- ERABLE (MG/L (AS MG) (00927)	TOTAL RECOV- ERABLE (MG/L (AS K) (00935)	SODIUM, RECOV- ERABLE (MG/L (AS K) (00937)	TOTAL DIS- RECOV- ERABLE (MG/L (AS NA) (00930)	WATER HEATED (MG/L AS CACO3) (00435)	WATER UNFLTRD FET FIELD LAB AS CACO3 (70508)	WATER UNFLTRD FET FIELD LAB MG/L AS CACO3 (00410)	
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
<hr/>											
DATE		CHLO-	SULFATE	OXID- ATION RED- DUCTION SOLVED SOLVED (MG/L (AS CL) (00940)	DEG. C.	RESIDUE TOTAL POTEN- TIAL (MV) (AS SO4) (00090)	ALUM- INUM, DIS- PENDED (UG/L) (00530)	ALUM- INUM, RECOV- ERABLE (UG/L) (01106)	IRON, TOTAL DIS- RECOV- ERABLE (UG/L) (01105)	IRON, TOTAL DIS- RECOV- ERABLE (UG/L) (01046)	MANGA- NESE, TOTAL DIS- RECOV- ERABLE (UG/L) (01045)
		RIDE,	DIS-	AT 105	DEG. C.	AS AL) (01106)	AS AL) (01105)	AS FE) (01046)	AS FE) (01045)	AS MN) (01056)	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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA-	COL-	CHARGE,	SOLVED	WATER	WATER	CIFIC			
LYZING	LECTING	INST.	WHOLE	FIELD	LAB	CON-	TEMPER-	DIS-			
SAMPLE	SAMPLE	CUBIC	PER-	OXYGEN,	(STAND-	DUCT-	ATURE	SOLVED			
(CODE	(CODE	FEET	CENT-	DIS-	ARD	ANCE	WATER	(MG/L			
NUMBER)	NUMBER)	SECOND	SATUR-	SOLVED	UNITS)	(STAND-	(DEG C)	AS CA)			
(00028)	(00027)	(00061)	(00301)	(00300)	(00400)	(00403)	(00095)	(00010)	(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	MAGNE-	MAGNE-	POTAS-	POTAS-	SODIUM,	SODIUM,	ACIDITY	ANC	ANC	
	TOTAL	SIUM,	SIUM,	TOTAL	SIUM,	TOTAL	TOTAL	TOTAL	WATER	WATER	
RECOV-	DIS-	RECOV-	DIS-	RECOV-	DIS-	RECOV-	HEATED	UNFLTRD	UNFLTRD		
ERABLE	SOLVED	ERABLE	SOLVED	ERABLE	SOLVED	ERABLE	(MG/L	FET	FET		
(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	AS CAC03)	FIELD	FIELD		
AS CA)	AS MG)	AS MG)	AS K)	AS K)	AS NA)	AS NA)	(00435)	LAB	LAB		
(00916)	(00925)	(00927)	(00935)	(00937)	(00930)	(00929)	(70508)	MG/L AS	MG/L AS		
(00410)	(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	CHLO-	SULFATE	OXID-	RESIDUE	ALUM-	IRON,	MANGA-	MANGA-		
	RIDE,	DIS-	ATION	TOTAL	INUM,	TOTAL	NESE,	NESE,		
DIS-	SOLVED	RED-	AT 105	TOTAL	RECOV-	DIS-	TOTAL	TOTAL		
(MG/L	(MG/L	DIS-	DEG. C.	DIS-	RECOV-	RECOV-	DIS-	RECOV-		
AS CL)	AS SO4)	AS 45)	(00090)	(00530)	(01106)	(01105)	(01046)	(01045)		
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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET	DIS- SOLVED CENT. PER- SECOND	OXYGEN, SATUR- ATION)	PH WATER (MG/L) (00300)	PH WATER WHOLE FIELD LAB	SPE- CIFIC CON- DUCT- ANCE	TEMPER- ATURE WATER (US/CM) (00095)	CALCIUM DIS- SOLVED (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
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		CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, RECOV- ERABLE (MG/L AS MG) (00925)	MAGNE- SIUM, RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, RECOV- ERABLE (MG/L AS K) (00935)	POTAS- SIUM, RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, RECOV- ERABLE (MG/L AS NA) (00930)	SODIUM, RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (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	
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		CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	OXID- ATION RED- DUCTION POTEN- TIAL (MV) (00090)	RESIDUE TOTAL DEG. C. SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (UG/L) (01106)	ALUM- INUM, RECOV- ERABLE (UG/L) (01105)	IRON, IRON, RECOV- ERABLE (UG/L) (01046)	IRON, TOTAL DIS- SOLVED (UG/L) (01045)	MANGA- NESE, TOTAL DIS- RECOV- ERABLE (UG/L) (01056)	MANGA- NESE, TOTAL DIS- RECOV- ERABLE (UG/L) (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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM
		ANA-	COL-	CHARGE,	SOLVED	WATER	WATER	CIFIC	
LYZING	LECTING	INST.	WHOLE	FIELD	LAB	CON-	TEMPER-	SOLVED	
SAMPLE	SAMPLE	CUBIC	PER-	OXYGEN,	FIELD	DUCT-	ATURE	(MG/L)	
(CODE	(CODE	FEET	CENT	SATUR-	LAB	ANCE	WATER	(AS CA)	
NUMBER)	NUMBER)	(00027)	(00061)	ATION)	(00301)	(STAND-	(DEG C)	(00915)	
(00028)				(00300)	(00400)	(00403)	(US CM)		
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	MAGNE-	MAGNE-	POTAS-	SODIUM,	ACIDITY	ANC	ANC
TOTAL	SIUM,	SIUM,	TOTAL	SIUM,	TOTAL	TOTAL	TOTAL	WATER	WATER
RECOV-	DIS-	RECOV-	DIS-	RECOV-	DIS-	HEATED	UNFLTRD	FET	FET
ERABLE	SOLVED	ERABLE	SOLVED	ERABLE	SOLVED	RECOV-	AS	FIELD	LAB
(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(CAC03)	MG/L AS	MG/L AS
AS CA)	AS MG)	AS MG)	AS K)	AS K)	AS NA)	AS NA)	(00929)	CACO3	CACO3
(00916)	(00925)	(00927)	(00935)	(00937)	(00930)	(00929)	(70508)	(00410)	(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		CHLO-	SULFATE	OXID-	RESIDUE	ALUM-	IRON,	MANGA-	MANGA-
RIDE,	DIS-	ATION	RED-	TOTAL	ALUM-	TOTAL	TOTAL	NESE,	NESE,
DIS-	SOLVED	SOLVED	DUCTION	AT 105	INUM,	IRON,	IRON,	TOTAL	TOTAL
SOLVED	(MG/L)	(MG/L)	POTEN-	DEG. C.	DIS-	RECOV-	DIS-	RECOV-	RECOV-
(MG/L)	(AS CL)	(AS SO4)	SUS-	SUS-	SOLVED	ERABLE	SOLVED	ERABLE	ERABLE
AS CL)	(00940)	(00945)	(MV)	TIAL	PENDED	(UG/L)	(UG/L)	(UG/L)	(UG/L)
(00940)	(00090)	(00090)	(00530)	(00530)	(01106)	(AS AL)	(AS AL)	(AS FE)	(AS MN)
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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM	
		ANA-	COL-	CHARGE,	DIS-	WATER	WATER	CIFIC		
LYZING	LECTING	INST.	SOLVED	WHOLE	WHOLE	CON-	TEMPER-	DIS-		
SAMPLE	SAMPLE	CUBIC	(PER-	OXYGEN,	FIELD	DUCT-	ATURE	SOLVED		
(CODE	(CODE	FEET	CENT	DIS-	LAB	ANCE	WATER	(MG/L		
NUMBER)	NUMBER)	SECOND	PER	SATUR-	(STAND-	(STAND-	WATER	AS CA)		
(00028)	(00027)	(00061)	(00301)	SOLVED	ARD	ARD	(DEG C)	(00010)	(00915)	
(MG/L)	(MG/L)	(M)	(M)	(MG/L)	(MG/L)	(MG/L)	(US/CM)	(00095)		
AUG										
02...	1415	9813	1028	.22	88	9.8	3.4	426	10.2	8.44
23...	1100	9813	1028	.19	94	10.5	3.5	564	10.1	19.5
SEP										
13...	1230	9813	1028	.15	97	10.6	4.9	449	11.5	22.5
DATE	TIME	CALCIUM	MAGNE-	MAGNE-	POTAS-	POTAS-	ACIDITY	ANC	ANC	
		TOTAL	SIUM,	SIUM,	TOTAL	SIUM,	TOTAL	TOTAL	WATER	WATER
RECOV-	DIS-	RECOV-	DIS-	RECOV-	DIS-	HEATED	UNFLTRD	UNFLTRD		
ERABLE	SOLVED	ERABLE	SOLVED	ERABLE	SOLVED	RECOV-	(MG/L	FET		
(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	ERABLE	AS	FIELD		
AS CA)	AS MG)	AS MG)	AS K)	AS K)	AS NA)	(MG/L	AS	LAB		
(00916)	(00925)	(00927)	(00935)	(00937)	(00930)	(00929)	(70508)	MG/L AS		
								CACO3	CACO3	
								(00410)	(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	TIME	CHLO-	OXID-	RESIDUE	ALUM-	IRON,	MANGA-	MANGA-		
		RIDE,	SULFATE	ATION	TOTAL	INUM,	TOTAL	NESE,	NESE,	
DIS-	DIS-	RED-	AT 105	TOTAL	IRON,	TOTAL	TOTAL			
SOLVED	SOLVED	UCTION	DEG. C.	DIS-	RECOV-	DIS-	RECOV-			
(MG/L)	(MG/L)	POTEN-	SUS-	SOLVED	ERABLE	SOLVED	ERABLE			
AS CL)	AS SO4)	(MV)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)			
(00940)	(00945)	(00090)	(00530)	(01106)	(01105)	(01046)	(01045)			
								AS MN)	AS MN)	
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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-		
		ANA-	COL-	INST.	SOLVED	WATER	WATER	CIFIC		
		LYZING	LECTING	CUBIC	(PER-	OXYGEN,	FIELD	CON-	TEMPER-	
		SAMPLE	SAMPLE	FEET	CENT	DIS-	LAB	DUCT-	ATURE	
		(CODE	(CODE	PER	SATUR-	SOLVED	(STAND-	(STAND-	WATER	
		NUMBER)	NUMBER)	SECOND	ATION)	(00301)	(00300)	(00400)		
		(00028)	(00027)	(00061)		(00300)		(00403)	(US/CM)	
									(DEG C)	
									(00010)	
NOV 16...	1130	80020	1028	.00	50	6.0	6.4	6.5	542	7.0

DATE	TIME	MAGNE-	SIUM,	SODIUM,	CHLO-	OXID-	ALUM-	MANGA-			
		CALCIUM	DIS-	DIS-	RIDE,	SULFATE	COLOR	RED-	IRON,	NESE,	
		SOLVED	SOLVED	SOLVED	DIS-	(PLAT-	INUM,	DIS-	DIS-		
		(MG/L	(MG/L	(MG/L	DIS-	SUCTION	DIS-	SOLVED	SOLVED		
		AS CA)	AS MG)	AS NA)	(MG/L	INUM-	POTEN-	SOLVED	SOLVED		
		(00915)	(00925)	(00930)	AS CL)	COBALT	TIAL	(UG/L	(UG/L		
					AS SO4)	UNITS)	(MV)	AS AL)	AS FE)		
					(00945)	(00080)	(00080)	(01106)	(01046)		
									(01056)		
NOV 16...	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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA-	COL-	INST.	SOLVED	WATER	WATER	CIFIC	TEMPER-	DIS-	
		LYZING	LECTING	CUBIC	(PER-	OXYGEN,	FIELD	CON-	ATURE		
		SAMPLE	SAMPLE	FEET	CENT	DIS-	LAB	DUCT-	WATER		
		(CODE	(CODE	PER	SATUR-	SOLVED	(STAND-	(STAND-	(MG/L		
		NUMBER)	NUMBER)	SECOND	ATION)	(00301)	(00300)	(00400)	AS CA)		
		(00028)	(00027)	(00061)		(00300)		(00403)	(00095)		
									(00010)		
									(00915)		
NOV 16...	1145	80020	1028	.00	3	.5	6.8	6.3	466	8.5	47.0

DATE	TIME	MAGNE-	SIUM,	SODIUM,	CHLO-	OXID-	ALUM-	MANGA-			
		DIS-	DIS-	ACIDITY	RIDE,	SULFATE	COLOR	RED-	IRON,	NESE,	
		SOLVED	SOLVED	(MG/L	DIS-	DIS-	(PLAT-	INUM,	DIS-	DIS-	
		(MG/L	(MG/L	AS	SOLVED	SOLVED	SUCTION	DIS-	SOLVED	SOLVED	
		AS MG)	AS MG)	CACO3)	(MG/L	(MG/L	INUM-	POTEN-	SOLVED	SOLVED	
		(00925)	(00930)	(00435)	AS CL)	AS CL)	COBALT	TIAL	(UG/L	(UG/L	
					AS SO4)	AS SO4)	UNITS)	(MV)	AS AL)	AS FE)	
					(00945)	(00080)	(00080)	(00090)	(01106)	(01046)	
										(01056)	
NOV 16...	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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM
		ANA-	COL-	INST.	SOLVED	WATER	WATER	CIFIC	
LYZING	LECTING	CUBIC	(PER-	OXYGEN,	FIELD	WHOLE	CON-	ATURE	SOLVED
SAMPLE	SAMPLE	FEET	CENT	SATUR-	DIS-	(STAND-	DUCT-	WATER	(MG/L)
(CODE	(CODE	PER	DIS-	ATION)	SOLVED	ARD	ANCE	WATER	(AS CA)
NUMBER)	NUMBER)	SECOND	(00061)	(00301)	(MG/L)	UNITS)	ARD	(US/CM)	(00010)
(00028)	(00027)	(00061)	(00301)	(00300)	(00400)	(00400)	(00403)	(00095)	(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
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DATE		CALCIUM	MAGNE-	MAGNE-	POTAS-	POTAS-	SODIUM,	ACIDITY	ANC
		TOTAL	SIMUM,	SIMUM,	TOTAL	SIMUM,	TOTAL	TOTAL	WATER
RECOV-	DIS-	RECOP-	RECOP-	DIS-	RECOP-	RECOP-	RECOP-	HEATED	UNFLTRD
ERABLE	SOLVED	ERABLE	ERABLE	SOLVED	ERABLE	SOLVED	ERABLE	(MG/L	FET
(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	AS	LAB
AS CA)	AS MG)	AS MG)	AS K)	AS K)	AS NA)	AS NA)	AS NA)	CAC03)	MG/L AS
(00916)	(00925)	(00927)	(00935)	(00937)	(00930)	(00929)	(00435)	(70508)	CACO3)
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
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DATE		CHLO-	SULFATE	OXID-	RESIDUE	ALUM-	IRON,	MANGA-	MANGA-
		RIDE,	DIS-	ATION	TOTAL	INUM,	TOTAL	NESE,	NESE,
DIS-	SOLVED	RED-	SOLVED	RED-	AT 105	TOTAL	IRON,	TOTAL	TOTAL
SOLVED	(MG/L	DUCTION	POTEN-	DEG. C,	DEG. C,	IRON,	DIS-	DIS-	RECOV-
(MG/L	AS CL)	(MG/L	TIAL	SUS-	SUS-	RECOV-	RECOV-	RECOV-	RECOV-
AS SO4)	(00940)	(00945)	(MV)	PENDED	(00530)	(01106)	(01105)	(01046)	(01045)
(00940)	(00945)	(00940)	(00530)	(01106)	(01105)	(01105)	(01046)	(01045)	(01056)
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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA-	COL-	CHARGE,	DIS-	WATER	WATER	CIFIC			
LYZING	LECTING	INST.	SOLVED	WHOLE	FIELD	LAB	CON-	TEMPER-	DIS-		
SAMPLE	SAMPLE	CUBIC	(PER-	OXYGEN,	FIELD	LAB	DUCT-	ATURE	SOLVED		
(CODE	(CODE	FEET	CENT	DIS-	(STAND-	(STAND-	ANCE	WATER	(MG/L		
NUMBER)	NUMBER)	SECOND	PER	SATUR-	SOLVED	ARD	ARD	WATER	AS CA)		
(00028)	(00027)	(00061)	(00301)	(00300)	(00400)	(00403)	(00403)	(US/CM)	(00010)		
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	--
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DATE		MAGNE-	SODIUM,	ANC	CHLO-	SULFATE	COLOR	OXID-	MANGA-		
		SIUM,	DIS-	WATER	RIDE,	DIS-	(PLAT-	ATION	NESE,		
		DIS-	SOLVED	UNFLTRD	FET	SOLVED	INUM-	RED-	DIS-		
		SOLVED	(MG/L	(MG/L	FIELD	SOLVED	POTEN-	INUM,	SOLVED		
		(MG/L	AS MG)	AS NA)	AS	(MG/L AS	COBALT	ITION	(UG/L		
		(00925)	(00930)	(00435)	CACO ₃	AS CL)	AS SO ₄)	(00080)	(01046)		
		(00940)	(00945)	(00940)	(00945)	(00945)	(00080)	(00090)	(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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	DIS- SOLVED CENT SATUR- ATION) (00301)	OXYGEN, WHOLE DIS- SOLVED (MG/L) (00300)	PH WATER (STAND- ARD UNITS) (00400)	PH WATER FIELD LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CONDU- CTANCE (US/CM) (00095)	TEMPE- RATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (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	
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DATE		CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00935)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, TOTAL DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL DIS- SOLVED (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET FIELD LAB MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET FIELD 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	
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DATE		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- CTION POTEN- TIAL (MV) (00090)	RESIDUE TOTAL AT 105 DEG. C, POTEN- SUS- TIAL (MG/L) (00530)	ALUM- INUM, AT 105 DEG. C, PENDED (UG/L AS AL) (01106)	ALUM- INUM, TOTAL DIS- SOLVED (UG/L AS AL) (01105)	IRON, TOTAL DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, TOTAL DIS- SOLVED (UG/L AS MN) (01045)	MANGA- NESE, TOTAL DIS- SOLVED (UG/L AS MN) (01056)	
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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM			
		ANA- LYZING SAMPLE (CODE NUMBER) (00028)	COL- LECTING SAMPLE (CODE NUMBER) (00027)	CHARGE, INST. FEET	DIS- SOLVED CENT PER SECOND	WHOLE OXYGEN, DIS- SOLVED (MG/L)	WATER FIELD (STAND- ARD UNITS)	CIFIC CON- DUCT- ANCE				
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 RECOV- ERABLE (MG/L (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L (00927)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L (00935)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L (00937)	SODIUM, TOTAL RECOV- ERABLE (MG/L (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L (00929)	ACIDITY TOTAL HEATED (MG/L (00435)	ANC WATER UNFLTRD FET FIELD LAB MG/L AS CACO3 (70508)	ANC WATER UNFLTRD FET FIELD LAB MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET FIELD 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		CHLO- RIDE, DIS- SOLVED (MG/L (00940)	SULFATE RED- SOLVED (MG/L (00945)	OXID- ATION RED- SOLVED (MV) (00090)	RESIDUE TOTAL DEG. C.	ALUM- INUM, TOTAL DIS- PENDED (UG/L (00530)	ALUM- INUM, TOTAL DIS- ERABLE (UG/L (01106)	ALUM- INUM, TOTAL DIS- ERABLE (UG/L (01105)	COBALT, TOTAL RECOV- ERABLE (UG/L (01035)	COBALT, TOTAL DIS- ERABLE (UG/L (01037)	COPPER, TOTAL RECOV- ERABLE (UG/L (01040)	COPPER, TOTAL RECOV- ERABLE (UG/L (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, DIS- SOLVED (UG/L (01046)	IRON, TOTAL DIS- ERABLE (UG/L (01045)	LEAD, TOTAL DIS- ERABLE (UG/L (01049)	LEAD, TOTAL DIS- ERABLE (UG/L (01051)	MANGA- NESE, TOTAL DIS- SOLVED (UG/L (01056)	MANGA- NESE, TOTAL DIS- ERABLE (UG/L (01055)	NICKEL, TOTAL DIS- SOLVED (UG/L (01065)	NICKEL, TOTAL DIS- ERABLE (UG/L (01067)	ZINC, TOTAL DIS- ERABLE (UG/L (01090)	ZINC, TOTAL DIS- ERABLE (UG/L (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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, CUBIC FEET PER SECOND (00061)	DIS- INST. CENT PER SATUR- ATION (00301)	OXYGEN, SOLVED DIS- SOLVED (MG/L) (00300)	PH WATER (STAND- ARD UNITS) (00400)	PH WATER (STAND- ARD UNITS) (00403)	SPE- CIFIC CONDUC- TANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (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
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		CALCIUM TOTAL RECOV- ERABLE (MG/L (00916) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L (AS MG) (00927)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L (AS MG)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L (AS K)	SODIUM, TOTAL RECOV- ERABLE (MG/L (AS NA)	SODIUM, TOTAL RECOV- ERABLE (MG/L (AS NA)	ACIDITY TOTAL HEATED (MG/L (00929) (00930)	ANC WATER UNFLTRD FET FIELD LAB MG/L AS CACO3 (00435)	ANC WATER UNFLTRD FET FIELD LAB MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET FIELD 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
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		CHLO- RIDE, DIS- SOLVED (MG/L (00940) (00945)	SULFATE RED- SOLVED (MG/L (AS SO4) (00090)	OXID- ATION RED- POTEN- TIAL (MV) (00050)	RESIDUE TOTAL DEG. C. SUS- PENDED (MG/L) (00530)	ALUM- INUM, TOTAL DEG. C. DIS- PENDED (UG/L (AS AL) (01106)	ALUM- INUM, TOTAL DEG. C. DIS- PENDED (UG/L (AS AL) (01106)	COBALT, TOTAL RECOV- ERABLE (UG/L (AS CO) (01105)	COBALT, TOTAL RECOV- ERABLE (UG/L (AS CO) (01035)	COPPER, TOTAL DIS- RECOV- ERABLE (UG/L (AS CU) (01037)	COPPER, TOTAL DIS- RECOV- ERABLE (UG/L (AS CU) (01040)
OCT 20...	--	90.3	315	<2	<200	<200	<50	<50	<10	<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	--	--	--	--	--
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		IRON, DIS- SOLVED (UG/L (01046) (01045)	IRON, TOTAL DIS- SOLVED (UG/L (AS FE) (01049)	LEAD, TOTAL RECOV- ERABLE (UG/L (AS PB) (01051)	LEAD, TOTAL RECOV- ERABLE (UG/L (AS PB) (01051)	MANGA- NESE, TOTAL DIS- SOLVED (UG/L (AS MN) (01056)	MANGA- NESE, TOTAL DIS- SOLVED (UG/L (AS MN) (01056)	NICKEL, TOTAL DIS- SOLVED (UG/L (AS NI) (01055)	NICKEL, TOTAL DIS- SOLVED (UG/L (AS NI) (01065)	ZINC, TOTAL DIS- SOLVED (UG/L (AS ZN) (01067)	ZINC, TOTAL DIS- SOLVED (UG/L (AS ZN) (01090)
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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA-	COL-	CHARGE,	DIS-	WATER	WATER	CIFIC			
LYZING	LECTING	INST.	SOLVED	WHOLE	FIELD	LAB	CON-	TEMPER-	SOLVED		
SAMPLE	SAMPLE	CUBIC	(PER-	OXYGEN,	FIELD	LAB	DUCT-	ATURE	(MG/L)		
(CODE	(CODE	FEET	CENT	(STAND-	(STAND-	ARD	ANCE	WATER	AS CA)		
NUMBER)	NUMBER)	SECOND	PER	SOLVED	(MG/L)	UNITS)	ARD	WATER	(00915)		
(00028)	(00027)	(00061)	(00301)	(00300)	(00400)	(00403)	(00095)	(US/CM)	(00010)		
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	--
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DATE	MAGNE-	SODIUM,	ANC	CHLO-	SULFATE	COLOR	OXID-	ALUM-	MANGA-		
SIUM, DIS- SOLVED (MG/L AS MG) (00925)	DIS- SOLVED (MG/L AS NA) (00930)	ACIDITY (MG/L AS CACO3) (00435)	WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	CHLORIDE, DIS- SOLVED (PLAT- INUM- COBALT AS SO4) (00940)	SULFATE DIS- SOLVED (MG/L AS CL) (00945)	COLOR (PLAT- INUM- COBALT AS SO4) (00945)	ATION RED- DUCTION POTEN- TIAL (MV) (00080)	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...	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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA- LYZING SAMPLE (CODE NUMBER) (00028)	COL- LECTING SAMPLE (CODE NUMBER) (00027)	CHARGE, FEET (00061)	DIS- INST. CENT (00301)	SOLVED SATUR- ATION (00300)	WATER WHOLE FIELD (STAND- ARD (MG/L)) (00400)	CIFIC CON- DUCT- ANCE (US/CM) (00095)		DIS- SOLVED (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	TIME	CALCIUM	MAGNE- SIUM,	POTAS- SIUM,	POTAS- SIUM,	SODIUM,	SODIUM,	ACIDITY	ANC WATER	ANC WATER	
		TOTAL RECOV- ERABLE (MG/L (00916))	TOTAL DIS- SOLVED (MG/L (00925))	TOTAL RECOC- ERABLE (MG/L (00927))	TOTAL DIS- SOLVED (MG/L (00935))	RECOC- ERABLE (MG/L (00937))	RECOC- ERABLE (MG/L (00930))	ACIDITY (MG/L AS NA) (00929)	TOTAL HEATED FET (MG/L AS CACO3) (00435)	UNFLTRD FET FIELD LAB (70508) (00410)	UNFLTRD FET FIELD LAB (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	TIME	CHLO- RIDE, DIS- SOLVED (MG/L (00940))	SULFATE DIS- SOLVED (MG/L (00945))	OXID- ATION RED- UCTION POTEN- TIAL (MV)	RESIDUE TOTAL DEG. C.	ALUM- INUM, DIS- PENDED SUS- (MG/L)	ALUM- INUM, TOTAL RECOC- ERABLE SOLVED (UG/L (00530))	ALUM- INUM, TOTAL RECOC- ERABLE SOLVED (UG/L (01106))	COBALT, TOTAL RECOC- ERABLE SOLVED (UG/L (01105))	COBALT, TOTAL RECOC- ERABLE SOLVED (UG/L (01035))	COPPER, TOTAL RECOC- ERABLE (UG/L (01040))
		AS CL)	AS SO4)	(00090)	(00530)	(01106)	(01105)	(01035)	(01037)	(01040)	(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	TIME	IRON, DIS- SOLVED (UG/L (01046))	IRON, TOTAL RECOC- ERABLE (UG/L (01045))	LEAD, DIS- SOLVED (UG/L (01049))	LEAD, TOTAL RECOC- ERABLE (UG/L (01051))	MANGA- NESE, DIS- SOLVED (UG/L (01056))	MANGA- NESE, TOTAL RECOC- ERABLE SOLVED (UG/L (01055))	NICKEL, TOTAL RECOC- ERABLE SOLVED (UG/L (01065))	NICKEL, TOTAL RECOC- ERABLE SOLVED (UG/L (01067))	ZINC, TOTAL RECOC- ERABLE (UG/L (01090))	ZINC, TOTAL RECOC- ERABLE (UG/L (01092))
		AS FE)	AS FE) (01046)	AS PB)	AS PB)	AS MN)	AS MN)	AS NI)	AS NI)	AS ZN)	AS ZN)
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	AGENCY	DIS-	OXYGEN,	PH	SPE-	OXID-		
		ANA-	COL-	CHARGE,	DIS-	WATER	CIFIC	ATION		
		LYZING	LECTING	INST.	SOLVED	WHOLE	DUCT-	RED-		
		SAMPLE	SAMPLE	CUBIC	(PER-	FIELD	CON-	TEMPE-		
		(CODE	(CODE	FEET	CENT	(STAND-	ANCE	ATURE		
		NUMBER)	NUMBER)	SECOND	PER	SOLVED	ARD	WATER		
		(00028)	(00027)	(00061)	(00301)	(00300)	(00400)	(00095)		
						(US/CM)	(DEG C)	(MV)		
						(00010)	(00010)	(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	AGENCY	DIS- CHARGE,	OXYGEN, DIS- INST.	PH WATER	PH WATER	SPE- CIFIC CON- DUCT- ANCE	TEMPER- ATURE WATER	CALCIUM DIS- SOLVED (MG/L AS CA)	
		ANA- LYZING SAMPLE (CODE NUMBER) (00028)	COL- LECTING SAMPLE (CODE NUMBER) (00027)	CUBIC FEET PER SECOND (00061)	PER- CENT SATUR- ATION) (00301)	DIS- SOLVED (MG/L) (00300)	OXYGEN, FIELD (STAND- ARD UNITS) (00400)	(STAND- ARD UNITS) (00403)	(US/CM) (00095)	(DEG C) (00010)	
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
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DATE	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL DIS- RECOV- ERABLE (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL DIS- RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, TOTAL DIS- RECOV- ERABLE (MG/L AS K) (00935)	POTAS- SIUM, TOTAL DIS- RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, TOTAL DIS- RECOV- ERABLE (MG/L AS NA) (00930)	SODIUM, TOTAL DIS- RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET FIELD LAB MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET FIELD 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
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DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE RED- DIS- SOLVED (MG/L AS SO4) (00945)	OXID- ATION RED- CTION POTEN- TIAL (MV) (00090)	RESIDUE TOTAL DEG. C. SUS- PENDED (MG/L) (00530)	ALUM- INUM, TOTAL DIS- ERABLE (UG/L AS AL) (01106)	ALUM- INUM, TOTAL DIS- ERABLE (UG/L AS AL) (01106)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO) (01105)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO) (01035)	COPPER, TOTAL DIS- RECOV- ERABLE (UG/L AS CU) (01037)	COPPER, TOTAL DIS- RECOV- ERABLE (UG/L AS CU) (01040)	
OCT 20...	--	71.4	477	4	247	313	<50	<50	<10	<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	--	--	--	--	--
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DATE	IRON, DIS- SOLVED (UG/L AS FE) (01046)	IRON, TOTAL DIS- SOLVED (UG/L AS FE) (01045)	LEAD, TOTAL DIS- SOLVED (UG/L AS PB) (01049)	LEAD, TOTAL DIS- SOLVED (UG/L AS PB) (01051)	MANGA- NESE, TOTAL DIS- SOLVED (UG/L AS MN) (01056)	MANGA- NESE, TOTAL DIS- SOLVED (UG/L AS MN) (01056)	NICKEL, TOTAL DIS- SOLVED (UG/L AS NI) (01055)	NICKEL, TOTAL DIS- SOLVED (UG/L AS NI) (01065)	ZINC, TOTAL DIS- SOLVED (UG/L AS ZN) (01067)	ZINC, TOTAL DIS- SOLVED (UG/L AS ZN) (01090)	
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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA-	COL-	CHARGE,	DIS-	WATER	WATER	CIFIC			
LYZING	LECTING	INST.	SOLVED	WHOLE	FIELD	CON-	TEMPER-	DIS-			
SAMPLE	SAMPLE	CUBIC	(PER-	OXYGEN,	FIELD	DUCT-	ATURE	SOLVED			
(CODE	(CODE	FEET	CENT	DIS-	LAB	ANCE	WATER	(MG/L			
NUMBER)	NUMBER)	SECOND	SATUR-	SOLVED	(STAND-	(STAND-	(DEG C)	AS CA)			
(00028)	(00027)	(00061)	(00301)	(00300)	(00400)	(00403)	(00095)	(00010)	(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
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DATE		CALCIUM	MAGNE-	MAGNE-	POTAS-	SODIUM,	ACIDITY	ANC	ANC		
		TOTAL	SIUM,	TOTAL	SIUM,	TOTAL	TOTAL	WATER	WATER		
RECOV-	DIS-	RECOV-	DIS-	RECOV-	DIS-	RECOV-	HEATED	UNFLTRD	UNFLTRD		
ERABLE	SOLVED	ERABLE	SOLVED	ERABLE	SOLVED	ERABLE	ACIDITY	FET	FET		
(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	FIELD	FIELD		
AS CA)	AS MG)	AS MG)	AS K)	AS K)	AS NA)	AS NA)	AS CACO3)	LAB	LAB		
(00916)	(00925)	(00927)	(00935)	(00937)	(00930)	(00929)	(00435)	(70508)	(00410)	(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	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- POTEN- TIAL (MV) (00090)	RESIDUE TOTAL DEG. C. SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- RECOV- SOLVED (UG/L AS AL) (01106)	ALUM- INUM, DIS- RECOV- SOLVED (UG/L AS AL) (01105)	COBALT, TOTAL DIS- RECOV- SOLVED (UG/L AS CO) (01035)	COBALT, TOTAL DIS- RECOV- SOLVED (UG/L AS CO) (01037)	COPPER, TOTAL DIS- RECOV- SOLVED (UG/L AS CU) (01040)	COPPER, TOTAL DIS- RECOV- SOLVED (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)	TOTAL ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS PB) (01049)	LEAD, DIS- ERABLE (UG/L AS PB) (01051)	LEAD, TOTAL RECOV- ERABLE (UG/L AS MN) (01056)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01055)	MANGA- NESE, DIS- RECOV- ERABLE (UG/L AS NI) (01065)	NICKEL, TOTAL DIS- RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, TOTAL DIS- RECOV- ERABLE (UG/L AS ZN) (01067)	ZINC, TOTAL DIS- RECOV- ERABLE (UG/L AS ZN) (01090)	ZINC, TOTAL DIS- 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 (CODE NUMBER) (00028)	AGENCY (CODE NUMBER) (00027)	DIS- CHARGE, COL- LECTING SAMPLE PER SECOND FEET CUBIC SAMPLE FEET CENT SATUR- RATION) (00061)	OXYGEN, DIS- SOLVED (PER- CENT FEET) CUBIC SOLVED AS CL) (00301)	PH WATER WHOLE FIELD OXYGEN, DIS- SOLVED (MG/L 00300)	PH WATER WHOLE FIELD STAND- ARD AR'D UNITS) (00400)	PH WATER WHOLE FIELD STAND- ARD AR'D UNITS) (00403)	SPE- CIFIC TEMPER- ATURE WATER (US/CM) (00095)	
NOV 15...	1500	80020	1028	1.4	59	6.4	6.2	6.0	628	11.0
DATE		CALCIUM (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 SO4) (00940)	SULFATE COLOR (PLAT- INUM- COBALT UNITS) (00080)	OXID- ATION RED- POTEN- TIAL (MV) (00090)	ALUM- INUM, DIS- RECOV- SOLVED (UG/L AS AL) (01106)	IRON, DIS- RECOV- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- RECOV- 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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, FEET SECOND (00061)	OXYGEN, DIS- INST. CENT PER SATUR- ATION) (00301)	PH WATER WHOLE FIELD DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE LAB DIS- ARD (STAND- ARD UNITS) (00400)	SPE- CIFIC COND- DUCT- ANCE (STAND- ARD UNITS) (00403)	TEMPER- ATURE WATER (US/CM) (00095)	CALCIUM DIS- SOLVED (MG/L) (00010)	ANC 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 RECOV- ERABLE (MG/L) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L) (00927)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L) (00935)	SODIUM, TOTAL RECOV- ERABLE (MG/L) (00937)	SODIUM, TOTAL RECOV- ERABLE (MG/L) (00930)	ACIDITY ACIDITY (MG/L AS CAC03) (00435)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (00929)	ANC WATER UNFLTRD FET FIELD LAB MG/L AS CACO3 (70508)	ANC WATER UNFLTRD FET FIELD LAB MG/L AS CACO3 (00410)	
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		CHLO- RIDE, DIS- SOLVED (MG/L) (00940)	SULFATE SOLVED (MG/L) (00945)	OXID- ATION RED- ACTION DEG. C.	RESIDUE TOTAL POTEN- SUS- TIAL PENDED (MV) (00090)	ALUM- INUM, TOTAL DEG. C. DIS- PENDED (UG/L) (00530)	ALUM- INUM, TOTAL RECOV- ERABLE SOLVED (UG/L) (01106)	ALUM- INUM, TOTAL COBALT, DIS- RECOV- ERABLE SOLVED (UG/L) (01105)	COBALT, TOTAL RECOV- ERABLE SOLVED (UG/L) (01035)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CO) (01037)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01040)	
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, DIS- SOLVED (UG/L) (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, TOTAL DIS- SOLVED (UG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	NICKEL, TOTAL DIS- SOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	ZINC, TOTAL DIS- SOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. FEET SECOND (00061)	OXYGEN, DIS- SOLVED CENT PER SATUR- ATION) (00301)	PH WATER WHOLE FIELD	PH WATER WHOLE LAB	SPE- CIFIC CONDU- CTANCE	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	
DATE	TIME	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00935)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET FIELD LAB	ANC WATER UNFLTRD FET FIELD LAB
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
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
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	--	--	--	--	
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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA-	COL-	CHARGE,	DIS-	WATER	WATER	CIFIC			
LYZING	LECTING	INST.	SOLVED	WHOLE	FIELD	CON-	TEMPER-	SOLVED			
SAMPLE	SAMPLE	CUBIC	(PER-	OXYGEN,	FIELD	DUCT-	ATURE	(MG/L)			
(CODE	(CODE	FEET	CENT	SATUR-	LAB	ANCE	WATER	AS CA)			
NUMBER)	NUMBER)	SECOND	PER	ATION)	(STAND-	(STAND-	WATER	(00915)			
(00028)	(00027)	(00061)	(00301)	(00300)	(00400)	(00403)	(US CM)	(00010)			
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
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DATE		CALCIUM	MAGNE-	POTAS-	POTAS-	SODIUM,	SODIUM,	ACIDITY	ANC	ANC	
		TOTAL	SIUM,	SIUM,	SIUM,	TOTAL	TOTAL	TOTAL	WATER	WATER	
		TOTAL	TOTAL	TOTAL	TOTAL	RECOV-	RECOV-	HEATED	UNFLTRD	UNFLTRD	
		RECov-	DIS-	RECov-	DIS-	ERABLE	ERABLE	(MG/L	FET	FET	
		ERABLE	SOLVED	ERABLE	SOLVED	ERABLE	SOLVED	AS	FIELD	LAB	
		(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	CACO3)	MG/L AS	MG/L AS	
		AS CA)	AS MG)	AS MG)	AS K)	AS K)	AS NA)	(CACO3)	CACO3	CACO3	
		(00916)	(00925)	(00927)	(00935)	(00937)	(00930)	(00929)	(00435)	(70508)	
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
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DATE		CHLO-	SULFATE	OXID-	RESIDUE	ALUM-	INUM,	COBALT,	COPPER,	COPPER,	
		RIDE,	DIS-	ATION	TOTAL	ALUM-	TOTAL	DIS-	TOTAL	TOTAL	
		SOLVED	SOLVED	RED-	AT 105	INUM,	RECOV-	RECOV-	RECOV-	RECOV-	
		(MG/L	(MG/L	DUCTION	DEG. C.	DIS-	ERABLE	ERABLE	SOLVED	ERABLE	
		AS CL)	AS SO4)	(MV)	POTEN-	SUS-	SOLVED	(UG/L	(UG/L	(UG/L	
		(00940)	(00945)	(00090)	TIAL	PENDED	(00530)	(01106)	(01105)	(01035)	
		(00940)	(01045)	(01049)	(01051)	(01056)	(01055)	(01065)	(01067)	(01040)	
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	--	--	--	--	
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DATE		IRON,	IRON,	LEAD,	MANGA-	MANGA-	NICKEL,	TOTAL	ZINC,	ZINC,	
		TOTAL	DIS-	LEAD,	TOTAL	NESE,	TOTAL	ZINC,	TOTAL	TOTAL	
		SOLVED	RECOV-	DIS-	RECOV-	DIS-	RECOV-	DIS-	RECOV-	RECOV-	
		(UG/L	RECOV-	SOLVED	ERABLE	RECOV-	ERABLE	SOLVED	ERABLE	ERABLE	
		AS FE)	(UG/L								
		(01046)	(01045)	(01049)	(01051)	(01056)	(01055)	(01065)	(01067)	(01090)	
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

**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

**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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, FEET (00061)	DIS- INST. CUBIC PER- CENT SATUR- ATION) (00301)	OXYGEN, SOLVED DIS- CENT SATUR- ATION) (00300)	PH WATER WHOLE FIELD	PH WATER WHOLE LAB	SPE- CIFIC CONDU- CTANCE	TEMPER- ATURE WATER (US/CM) (00095)	CALCIUM DIS- SOLVED (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
		CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00935)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	ANC WATER UNFILTRD 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	
		CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	OXID- ATION RED- CTION POTEN- TIAL (MV) (00090)	RESIDUE TOTAL DEG. C. SUS- PENDED (MG/L) (00530)	ALUM- INUM, TOTAL DIS- PENDED (MG/L) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L) (01105)	IRON, TOTAL RECOV- ERABLE (UG/L) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L) (01045)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L) (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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET SECOND (00061)	OXYGEN, DIS- CENT PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (STAND- ARD UNITS) (00403)	TEMPER- ATURE WATER (US/CM) (00095)	TEMPER- ATURE 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
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DATE		CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00925)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00935)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00930)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFILTRD 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
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DATE		CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	OXID- ATION RED- DUCTION POTEN- TIAL (MV) (00090)	RESIDUE TOTAL DEG. C, SUS- PENDED (MG/L) (00530)	ALUM- INUM, TOTAL DIS- SOLVED (UG/L) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L) (01105)	IRON, TOTAL DIS- SOLVED (UG/L) (01046)	IRON, TOTAL DIS- SOLVED (UG/L) (01045)	MANGA- NESE, TOTAL DIS- SOLVED (UG/L) (01056)
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	PH WATER	MAGNE-	CHLO-	SULFATE	COLOR	ALUM-	IRON,	MANGA-		
		ANA- LYZING SAMPLE (CODE NUMBER) (00028)	WHOLE LAB (STAND- ARD UNITS) (00403)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	RIDE, DIS- SOLVED (MG/L AS CL) (00940)	DIS- SOLVED (MG/L AS SO4) (00945)	(PLAT- INUM- COBALT (UG/L AS UNITS) (00080)	INUM, DIS- SOLVED (UG/L AS AL) (01106)	DIS- SOLVED (UG/L AS FE) (01046)	NESE, 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	DIS- CHARGE, INST.	OXYGEN, DIS- SOLVED (PER- CENT)	PH WATER	PH WATER	SPE- CIFIC DUCT-	TEMPER- ATURE WATER	CALCIUM		
		ANA- LYZING SAMPLE (CODE NUMBER) (00028)	COL- LECTING SAMPLE (CODE NUMBER) (00027)	CUBIC FEET SECOND PER SECOND (00061)	OXYGEN, DIS- SOLVED CENT (00301)	FIELD DIS- SOLVED (MG/L) (00300)	(STAND- ARD UNITS) (00400)	(STAND- ARD UNITS) (00403)	ANCE (US/CM) (00095)	(DEG C) (00010)	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	MAGNE-	POTAS-	POTAS-	SODIUM,	ACIDITY	ANC	ANC		
	TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SIUM, DIS- SOLVED (MG/L AS MG) (00927)	SIUM, DIS- SOLVED (MG/L AS K) (00935)	SODIUM, DIS- SOLVED (MG/L AS K) (00937)	TOTAL HEATED ERABLE (MG/L AS NA) (00930)	WATER FET FIELD AS CAC03) (00929)	WATER FET LAB AS CAC03 (70508) (00410)	WATER FET LAB AS CAC03 (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	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE	OXID- ATION RED- DUCTION (MG/L AS SO4) (00945)	RESIDUE TOTAL DEG. C, POTEN- TIAL (MV) (00090)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (00530)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	IRON, DIS- SOLVED (UG/L AS FE) (01105)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	
	ANA- LYZING SAMPLE (CODE NUMBER) (00028)	WHOLE LAB (STAND- ARD UNITS) (00403)	SIUM, DIS- SOLVED (MG/L AS MG) (00915)	SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM, DIS- SOLVED (MG/L AS NA) (00937)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	IRON, DIS- SOLVED (UG/L AS FE) (01045)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01046)	NESE, DIS- SOLVED (UG/L AS MN) (01056)
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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET SECOND (00061)	OXYGEN, DIS- CENT PER SATUR- ATION) (00301)	PH WATER WHOLE FIELD DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (STAND- ARD UNITS) (00403)	TEMPER- ATURE WATER (US/CM) (00095)	ANC WATER UNFILTRD FET LAB MG/L AS CACO3 (00417)
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
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DATE		CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- ERABLE (MG/L AS MG) (00925)	POTAS- SIUM, DIS- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, DIS- ERABLE (MG/L AS K) (00935)	SODIUM, TOTAL SODIUM, DIS- ERABLE (MG/L AS K) (00937)	SODIUM, TOTAL SODIUM, DIS- ERABLE (MG/L AS NA) (00930)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	ANC WATER UNFILTRD 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
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DATE		CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	OXID- ATION RED- DUCTION POTEN- TIAL (MV) (00090)	RESIDUE TOTAL DEG. C. SUS- PENDED (MG/L) (00530)	ALUM- INUM, TOTAL DIS- ERABLE (UG/L) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L) (01105)	IRON, TOTAL DIS- ERABLE (UG/L) (01046)	IRON, TOTAL DIS- ERABLE (UG/L) (01045)	MANGA- NESE, TOTAL DIS- ERABLE (UG/L) (01056)
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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. CUBIC FEET SECOND (00061)	DIS- SOLVED CENT PER- SATUR- ATION) (00301)	OXYGEN, WHOLE DIS- SOLVED (MG/L) (00300)	PH WATER FIELD (STAND- ARD UNITS) (00400)	PH WATER LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CONDUC- TANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (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
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DATE		CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00925)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00935)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00930)	ACIDITY HEATED (MG/L AS CACO3) (00929)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET FIELD LAB MG/L AS CACO3 (00410)	ANC WATER UNFLTRD FET FIELD 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	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- ACTION DEG. C. POTEN- TIAL (MV) (00090)	RESIDUE TOTAL AT 105 INUM, SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- RECOV- ERABLE (UG/L AS AL) (01106)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01056)		
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)	DIS- SOLVED CENT FEET SATUR- ATION) (00301)	OXYGEN, WHOLE FIELD DIS- SOLVED (STAND- ARD) (00300)	PH WATER FIELD LAB (STAND- ARD) (00400)	PH WATER WHOLE LAB ARD ARD (00403)	SPE- CIFIC CON- DUCT- ANCE WATER (US/CM) (00095)	CALCIUM DIS- SOLVED (MG/L AS CA) (00010)	
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 FET (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FIELD AS CACO3 (00410)	CHLO- RIDE, DIS- SOLVED INUM- COBALT UNITS) (00940)	SULFATE COLOR (PLAT- ITION DEG. C. POTEN- TIAL (MV) (00080)	OXID- ATION RED- ACTION DEG. C. POTEN- TIAL (MV) (00090)	ALUM- INUM, DIS- SOLVED SOLVED IRON, TOTAL RECOV- ERABLE (UG/L AS AL) (01106)	MANGA- NESE, DIS- SOLVED SOLVED (UG/L AS FE) (01046)		
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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA-	COL-	CHARGE,	DIS-	WATER	WATER	CIFIC			
LYZING	LECTING	INST.	SOLVED	WHOLE	WHOLE	CON-	SOLVED	DIS-			
SAMPLE	SAMPLE	CUBIC	(PER-	OXYGEN,	FIELD	DUCT-	WATER	(MG/L)			
(CODE	(CODE	FEET	CENT	SATUR-	LAB	ANCE	WATER	AS CA)			
NUMBER)	NUMBER)	SECOND	PER	ATION)	(STAND-	(STAND-	(DEG C)	(00915)			
(00028)	(00027)	(00061)	(00301)	(00300)	(00400)	(00403)	(00095)	(00010)			
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	MAGNE-	MAGNE-	POTAS-	POTAS-	SODIUM,	ACIDITY	ANC	ANC		
	TOTAL (MG/L) (00916)	TOTAL (MG/L) (00925)	SIMUM, AS MG)	TOTAL (MG/L) (00927)	SIMUM, AS MG)	TOTAL (MG/L) (00935)	SIMUM, AS K)	TOTAL (MG/L) (00937)	HEATED AS (CAC03)	UNFLTRD FET FIELD LAB	UNFLTRD FET LAB
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	0

DATE	CHLO-	OXID-	RESIDUE	ALUM-	ALUM-	IRON,	MANGA-			
	RIDE,	SULFATE	ATION	TOTAL	INUM,	TOTAL	NESE,			
DIS-	DIS-	RED-	AT 105	INUM,	IRON,	NESE,	TOTAL			
SOLVED	SOLVED	DUCTION	DEG. C.	DIS-	RECOV-	DIS-	RECOV-			
(MG/L) (00940)	(MG/L) (00945)	(MV)	(00090)	(00530)	(01106)	(01105)	(01046)			
AS CL)	AS SO4)	(AS 00945)	(AS 00090)	(AS 00530)	(AS AL)	(AS AL)	(AS FE)			
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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA-	COL-	INST.	SOLVED	WATER	WATER	CIFIC			
LYZING	LECTING	CUBIC	(PER-	OXYGEN,	WHOLE	WHOLE	CON-	TEMPER-			
SAMPLE	SAMPLE	FEET	CENT	SATUR-	FIELD	LAB	DUCT-	ATURE	DIS-		
(CODE	(CODE	SECOND	PER-	ATION)	(STAND-	(STAND-	ANCE	WATER	SOLVED		
NUMBER)	NUMBER)	(00061)	(00301)	(00300)	(00400)	(00403)	(00095)	(US/CM)	(MG/L)		
(00028)	(00027)								AS CA)		
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	MAGNE-	MAGNE-	POTAS-	POTAS-	SODIUM,	ACIDITY	ANC	ANC	
	TOTAL	SIUM,	SIUM,	SIUM,	SIUM,	TOTAL	TOTAL	WATER	WATER	
RECOV-	DIS-	RECOV-	DIS-	RECOV-	DIS-	RECOV-	HEATED	UNFLTRD	UNFLTRD	
ERABLE	SOLVED	ERABLE	SOLVED	ERABLE	SOLVED	ERABLE	(MG/L)	FET	FET	
(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	AS CAC03)	FIELD	LAB	
AS CA)	AS MG)	AS MG)	(00925)	(00927)	(00935)	(00937)	(00930)	(00929)	(00410)	
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	CHLO-	OXID-	RESIDUE	ALUM-	ALUM-	IRON,	MANGA-			
	RIDE,	SULFATE	ATION	TOTAL	INUM,	TOTAL	NESE,			
DIS-	DIS-	RED-	AT 105	INUM,	IRON,	TOTAL	NESE,			
SOLVED	SOLVED	DUCTION	DEG. C.	DIS-	RECOV-	DIS-	RECOV-			
(MG/L)	(MG/L)	(MV)	POTEN-	SUS-	SOLVED	ERABLE	SOLVED	ERABLE		
AS CL)	AS SO4)	(00945)	TIAL	PENDED	(UG/L)	(UG/L)	(UG/L)	(UG/L)		
(00940)	(00090)	(00530)	(00106)	(01105)	(AS AL)	(AS AL)	(AS FE)	(AS MN)		
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 SAMPLE (CODE NUMBER) (00028)	AGENCY SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, FEET SECOND (00061)	OXYGEN, PER- CENT SATUR- ATION) (00301)	DIS- SOLVED (MG/L) (00300)	PH WATER FIELD ARD (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)
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
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DATE		CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- RECOV- ERABLE (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00935)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00930)	ACIDITY TOTAL HEATED 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
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DATE		CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	OXID- ATION RED- DUCTION POTEN- TIAL (MV) (00090)	RESIDUE TOTAL DEG. C. SUS- PENDED (MG/L) (00530)	ALUM- INUM, TOTAL DIS- SOLVED (UG/L) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L) (01105)	IRON, TOTAL DIS- SOLVED (UG/L) (01046)	MANGA- NESE, TOTAL DIS- RECOV- ERABLE (UG/L) (01045)	MANGA- NESE, TOTAL DIS- RECOV- ERABLE (UG/L) (01056)
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 SAMPLE (CODE NUMBER) (00028)	AGENCY SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, FEET SECOND (00061)	OXYGEN, PER- CENT SATUR- ATION) (00301)	DIS- SOLVED (MG/L) (00300)	PH WATER FIELD ARD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC (US/CM) (00095)	TEMPER- ATURE 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
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DATE		CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- RECOV- ERABLE (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, DIS- RECOV- ERABLE (MG/L AS K) (00935)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00930)	ACIDITY TOTAL HEATED 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
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DATE		CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	OXID- ATION RED- DUCTION POTEN- TIAL (MV) (00090)	RESIDUE TOTAL DEG. C. SUS- PENDED (MG/L) (00530)	ALUM- INUM, DIS- SOLVED (UG/L) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L) (01105)	IRON, TOTAL RECOV- ERABLE (UG/L) (01046)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L) (01045)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L) (01056)
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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, FEET (00061)	OXYGEN, PER- CENT (00301)	PH WATER (00300)	PH WATER (00400)	SPE- CIFIC CONDUC- TANCE (00403)	TEMPER- ATURE WATER (US/CM) (00095)	CALCIUM DIS- SOLVED (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 RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00925)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00935)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY (MG/L AS CACO3) (00435)	TOTAL HEATED WATER (70508)	ANC WATER UNFILTRD 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	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	RESIDUE TOTAL DEG. C. (00530)	ALUM- INUM, TOTAL DIS- PENDED (MG/L AS AL) (01106)	ALUM- INUM, TOTAL DIS- SOLVED (UG/L AS AL) (01105)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, TOTAL DIS- RECOV- ERABLE (UG/L AS MN) (01056)	
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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM	TOTAL			
		ANA-	COL-	CHARGE,	DIS-	WATER	WATER	CIFIC					
LYZING	LECTING	INST.	SOLVED	WHOLE	WHOLE	FIELD	CON-	TEMPER-	RECOV-				
SAMPLE	SAMPLE	CUBIC	(PER-	OXYGEN,	FIELD	CON-	DUCT-	ATURE	SOLVED	ERABLE			
(CODE	(CODE	FEET	CENT	(STAND-	FIELD	DUCT-	WATER	WATER	(MG/L	(MG/L			
NUMBER)	NUMBER)	(00028)	SECOND	SATUR-	(00301)	STAND-	ARD	(US/CM)	AS CA)	AS CA)			
			(00027)	ATION)	(00301)	ARD	UNFLTRD	(DEG C)	(00915)	(00916)			
OCT	18...	80020	1028	133	98	10.5	7.0	6.7	159	11.9	13.6	--	
DEC	06...	80020	1028	140	96	11.4	6.6	7.6	151	7.8	11.5	--	
JAN	19...	9813	1028	135	102	14.9	6.1	--	137	.0	12.1	12.3	
MAR	03...	9813	1028	--	101	12.9	6.5	--	148	5.1	8.44	8.47	
APR	17...	9813	1028	290	101	10.9	6.6	6.4	154	11.7	9.87	9.89	
MAY	22...	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...	9813	1028	--	100	10.2	6.9	6.4	177	15.6	9.72	9.75	
06...	1230	9813	1028	--	96	9.9	6.7	6.3	122	13.9	8.33	8.87	
07...	1315	9813	1028	--	101	10.0	7.0	--	135	16.3	--	--	
13...	1415	9813	1028	--	99	9.5	7.0	6.4	154	17.2	11.3	1.20	
AUG	02...	9813	1028	206	100	9.1	6.7	6.3	100	20.2	7.42	7.78	
SEP	13...	9813	1028	260	98	9.1	7.0	6.4	144	19.1	11.6	12.6	
DATE		MAGNE-	POTAS-	POTAS-	SODIUM,	ACIDITY	ANC	ANC	CHLO-	SULFATE			
		SIUM,	POTAS-	SIUM,	TOTAL	TOTAL	TOTAL	WATER	WATER	RIDE,			
SOLVED	(MG/L	TOTAL	TOTAL	TOTAL	SODIUM,	HEATED	UNFLTRD	UNFLTRD	DIS-	DIS-			
		DIS-	DIS-	DIS-	RECOV-	ACIDITY	(MG/L	FET	FET	SOLVED			
	(MG/L	RECOV-	RECOV-	RECOV-	SOLVED	(MG/L	AS	FIELD	LAB	SOLVED			
		ERABLE	ERABLE	ERABLE	ERABLE	(MG/L	CACO3)	(00435)	(00410)	(MG/L			
	(00925)	(00927)	(00935)	(00937)	(00930)	(00929)	(00435)	(70508)	(00417)	(00940)	(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-NITRATE TOTAL (MG/L AS N) (00620)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	OXID-ATION RED-CTION POTEN-TIAL (MV) (00090)	RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM- INUM, DIS-SOLVED (UG/L AS AL) (01106)	ALUM- INUM, RECOV-ERABLE (UG/L AS AL) (01105)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01035)	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	<10
MAY 22...	.02	1.0	.71	.030	--	<2	230	<200	<50	<10
24...	.03	1.4	.85	.050	--	44	<200	1720	<50	<10
JUN 05...	<.02	1.3	.92	.030	459	10	<200	241	<50	<10
06...	.02	1.0	.54	.100	464	80	<200	3000	<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, TOTAL RECOV- ERABLE (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	LEAD, DIS- ERABLE (UG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01056)	MANGA- NESE, DIS- ERABLE (UG/L AS MN) (01055)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	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
MAY 22...	<10	640	90	<1	<1	332	258	<50	<50	31
24...	<10	90	2980	<1	2	183	334	<50	<50	10
JUN 05...	<10	90	560	<1	<1	290	302	<50	<50	24
06...	10	150	7720	<1	4	266	504	<50	<50	20
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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. FEET PER SECOND (00061)	OXYGEN, DIS- SOLVED CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (STAND- ARD UNITS) (00403)	TEMPER- ATURE WATER (US/CM) (00095)	CALCIUM DIS- SOLVED (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	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	ANC WATER UNFLTRD ACIDITY (MG/L AS) (00435)	CHLO- RIDE, FET FIELD (MG/L AS CACO3) (00410)	SULFATE DIS- SOLVED (MG/L AS CL) (00940)	COLOR (PLAT- INUM- COBALT (AS SO4) (00945)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00080)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (00090)	MANGA- NESE, DIS- SOLVED (UG/L AS FE) (01106)		
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 ANA- LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	DIS- CHARGE, INST. FEET PER SECOND (00061)	OXYGEN, DIS- SOLVED CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD LAB (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (STAND- ARD UNITS) (00403)	TEMPER- ATURE WATER (US/CM) (00095)	CALCIUM DIS- SOLVED (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	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	ANC WATER UNFLTRD ACIDITY (MG/L AS) (00435)	CHLO- RIDE, FET FIELD (MG/L AS CACO3) (00410)	SULFATE DIS- SOLVED (MG/L AS CL) (00940)	COLOR (PLAT- INUM- COBALT (AS SO4) (00945)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00080)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (00090)	MANGA- NESE, DIS- SOLVED (UG/L AS FE) (01106)		
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	AGENCY	DIS-	OXYGEN,	PH	PH	SPE-	CALCIUM		
		ANA-	COL-	CHARGE,	DIS-	WATER	WATER	CIFIC			
LYZING	LECTING	INST.	SOLVED	WHOLE	FIELD	LAB	CON-	TEMPER-	SOLVED		
SAMPLE	SAMPLE	CUBIC	(PER-	OXYGEN,	FIELD	LAB	DUCT-	ATURE	(MG/L)		
(CODE	(CODE	FEET	CENT	(STAND-	(STAND-	(STAND-	ANCE	WATER	AS CA)		
NUMBER)	NUMBER)	SECOND	PER	SOLVED	ARD	ARD	ANCE	WATER	(00915)		
(00028)	(00027)	(00061)	(00301)	(00300)	(00400)	(00403)	(00095)	(US/CM)	(DEG C)		
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	--
<hr/>											
DATE	MAGNE-	SODIUM,	ANC	CHLO-	SULFATE	COLOR	OXID-	ALUM-	MANGA-		
SIUM, DIS- SOLVED (MG/L AS MG)	DIS- SOLVED (MG/L AS NA)	ACIDITY (MG/L AS NA)	WATER UNFLTRD	RIDE, FET	DIS- SOLVED	(PLAT- INUM- COBALT	ATION RED- DUCTION	INUM, DIS- SOLVED	NESE, DIS- SOLVED (UG/L AS FE)		
(00925)	(00930)	(00435)	(00410)	(00940)	(00945)	(00945)	(00080)	(00090)	(01106)	(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	--	--	--