

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

Miscellaneous water-quality data were collected for several projects in cooperation with the Schuylkill Conservation District and the Schuylkill Headwaters Association, Inc. These projects involve assessing the characteristics and remediation of abandoned mine drainage in the Upper Schuylkill River Basin. For additional information, contact Charles Cravotta at the USGS Pennsylvania Water Science Center, 215 Limekiln Road, New Cumberland, PA 17070; 717-730-6900, (email: cravotta@usgs.gov).

**TABLE 4.**--Acid mine drainage project station list.

Station number	Location	Latitude	Longitude	Drainage area (mi <sup>2</sup> )
404512076025501	Bell Water Level Tunnel	40° 45' 10"	76° 02' 53"	n.a.
0146742498	Bell Water Level Tunnel, 225 M DS, nr Middleport, PA	40° 45' 14"	76° 02' 57"	0.02
404513076025811	Bell Wetland, Cell A Outflow Pipe	40° 45' 13"	76° 02' 58"	n.a.
404511076025811	Bell Wetland, Cell B Outflow Pipe	40° 45' 11"	76° 02' 58"	n.a.
404513076025812	Bell Wetland, Cell A Spillway	40° 45' 13"	76° 02' 58"	n.a.
404511076025812	Bell Wetland, Cell B Spillway	40° 45' 11"	76° 02' 58"	n.a.
404511076025813	Bell Wetland, Cell B, Flush Pipe	40° 45' 11"	76° 02' 58"	n.a.
0146742494	Schuylkill River ab Bell Tunnel at Mary D, PA	40° 45' 16"	76° 02' 54"	3.29
0146742500	Schuylkill River bl Bell Tunnel at Mary D, PA	40° 45' 12"	76° 03' 01"	3.35
404511076030101	Bell Colliery Wetland Bypass Trench	40° 45' 11"	76° 03' 01"	n.a.
403958076191401	Otto Air Shaft	40° 39' 58"	76° 19' 14"	n.a.
0146784348	Otto Air Shaft near Llewellyn, PA	40° 40' 03"	76° 19' 11"	0.08
0146784350	Otto Air Shaft, 400 M DS, nr Llewellyn, PA	40° 40' 07"	76° 19' 07"	0.09
0146784338	Muddy Branch ab Otto Mine Discharge nr Branchdale, PA	40° 40' 08"	76° 19' 07"	1.66
0146784354	Muddy Branch bl Otto Mine Discharge ab Steins, PA	40° 40' 03"	76° 18' 24"	2.25
0146784358	Muddy Branch bl Otto Mine Discharge bl Steins, PA	40° 39' 53"	76° 18' 10"	3.03
404001076191301	Otto Mine Airshaft Wetland Cell 1 Outflow	40° 40' 01"	76° 19' 13"	n.a.
404006076191001	Otto Mine Airshaft Wetland Cell 2 Outflow	40° 40' 06"	76° 19' 10"	n.a.
404005076190901	Otto Mine Airshaft Wetland Cell 3 Outflow	40° 40' 04"	76° 19' 09"	n.a.
404008076190601	Otto Mine Airshaft Limestone Drain Outflow	40° 40' 07"	76° 19' 06"	n.a.
404320076103201	Pine Forest Mine	40° 43' 20"	76° 10' 32"	n.a.
0146748710	L Wolf Creek ab Pine Forest AMD at St. Clair, PA	40° 43' 08"	76° 10' 38"	0.85
404705076003201	Reevesdale S Dip Tunnel	40° 47' 05"	76° 00' 32"	n.a.
01467688	WB Schuylkill River ab Pine Knot Disch at Duncott	40° 42' 14"	76° 14' 58"	17.1
01467689	Pine Knot Disch 500 m bl Tunnel at Duncott, PA	40° 42' 14"	76° 14' 59"	n.a.
01467691	Oak Hill Disch 200 m bl Borehole at Duncott	40° 42' 07"	76° 15' 05"	n.a.
01467692	WB Schuylkill R bl Oak Hill Borehole at Duncott	40° 42' 04"	76° 15' 06"	17.5
01467752	WB Schuylkill River ab West Cr near Pottsville, PA	40° 40' 07"	76° 14' 11"	24.1
01467861	West Cr West Branch Schuylkill near Pottsville, PA	40° 40' 07"	76° 14' 16"	18.6
01467492	Mill Cr ab Schuylkill River at Port Carbon, PA	40° 41' 37"	76° 09' 53"	25.5
01467471	Schuylkill River ab Mill Creek at Port Carbon, PA	40° 41' 37"	76° 09' 53"	27.2
01469700	Little Schuylkill River at South Tamaqua, PA	40° 46' 23"	75° 57' 25"	65.7

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**404512076025501 -- Bell Water Level Tunnel**

**REMARKS.--**Some values for "dissolved" parameters exceeded values for the corresponding "total" parameter. These results are within the limits of analytical precision and methods.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, percent of saturation (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	
OCT	13...	1028	89203	1.8	628	7.0	7.8	69	3.6	4.0
NOV	16...	1028	89203	1.3	587	5.5	7.1	62	3.8	3.9
DEC	16...	1028	89203	4.7	457	5.8	6.3	56	2.7	3.5
JAN	25...	1028	89203	3.7	495	--	6.3	56	4.1	4.0
FEB	23...	1028	89203	1.9	617	5.0	8.7	76	3.8	3.8
MAR	15...	1028	89203	1.5	316	--	7.7	67	3.7	3.7

  

Date	Specif. conductance, wat unfltrd, µS/cm 25 degC (00095)	Temperature, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recover-able, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)	
OCT	13...	304	9.6	16.8	17.3	14.4	14.6	1.00	1.0	2.60	2.3
NOV	16...	319	9.7	19.1	19.0	15.3	15.6	1.00	1.0	2.50	2.6
DEC	16...	288	9.5	16.9	18.0	14.1	15.0	1.00	1.0	2.60	2.2
JAN	25...	282	9.4	17.5	19.9	14.6	16.1	4.70	1.1	2.80	2.9
FEB	23...	285	9.6	16.4	17.3	13.8	14.6	1.00	1.1	2.60	2.7
MAR	15...	276	9.6	17.3	18.8	13.4	15.4	1.10	1.3	2.80	2.9

  

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate, water, fltrd, mg/L as N (00618)	Nitrite, water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recover-able, µg/L (01105)	Bromine, water, unfltrd mg/L (71871)	
OCT	13...	.0	2.8	--	117	--	--	1900	1900	--	
NOV	16...	.0	2.8	.01	126	.02	<.030	<.020	1500	1500	.02
DEC	16...	.0	2.6	--	116	--	--	1300	1400	--	
JAN	25...	.0	2.4	--	117	--	--	1500	1700	--	
FEB	23...	.0	3.7	--	113	--	--	1300	1400	--	
MAR	15...	.0	2.8	<.01	106	<.01	<.030	<.020	1200	1400	.22

  

Date	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	
OCT	13...	1260	1940	1460	1470	70.0	70.0	230	240
NOV	16...	1900	2520	1610	1630	70.0	70.0	220	220
DEC	16...	1480	2160	1470	1600	60.0	65.0	205	220
JAN	25...	1310	2670	1600	2190	65.0	70.0	235	485
FEB	23...	1780	2390	1550	1620	60.0	65.0	230	220
MAR	15...	2870	3080	1740	1560	55.0	65.0	450	225

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**0146742498 -- Bell Water Level Tunnel, 225 M DS, nr Middleport**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, percent of saturation (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)		
OCT	13...	1028	89203	2.7	453	6.1	11.0	95	4.7	4.9	
NOV	16...	1028	89203	2.4	422	4.8	11.0	94	4.9	4.9	
DEC	16...	1028	89203	4.8	600	6.6	10.7	92	3.5	4.3	
JAN	25...	1028	89203	4.1	383	--	10.1	87	4.5	4.5	
	25...	1028	89203	--	--	--	--	--	--	--	
FEB	23...	1028	89203	3.1	510	4.5	11.2	97	4.5	4.5	
MAR	15...	1028	89203	2.1	310	--	11.6	102	4.9	5.0	
Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium unfltrd recover-able, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recover-able, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)	
OCT	13...	265	9.1	20.7	21.2	15.1	15.3	1.10	1.1	2.30	2.4
NOV	16...	282	8.6	22.9	23.2	16.0	16.0	1.10	1.1	2.60	2.7
DEC	16...	270	8.4	18.0	20.0	14.0	15.6	1.00	1.1	2.50	2.5
JAN	25...	265	9.0	18.7	20.6	14.8	16.0	2.20	1.2	2.60	2.9
	25...	--	--	--	20.6	--	14.4	--	1.1	--	2.6
FEB	23...	262	9.0	18.9	20.6	14.2	15.7	1.00	1.3	2.40	3.1
MAR	15...	245	9.6	20.0	22.3	13.7	15.6	1.10	1.2	2.50	2.7
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate, water, fltrd, mg/L as N (00618)	Nitrite, water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recover-able, mg/L (01105)	Bromine, water, unfltrd mg/L (71871)	
OCT	13...	2	2.7	--	115	--	--	1300	1500	--	
NOV	16...	1	4.8	.01	124	.04	<.030	<.020	1000	1200	.02
DEC	16...	.0	2.7	--	117	--	--	1200	1300	--	
JAN	25...	.0	2.4	--	117	--	--	1300	1500	--	
	25...	--	--	--	--	--	--	--	7100	--	
FEB	23...	.0	3.9	--	112	--	--	1100	1300	--	
MAR	15...	1	2.7	<.01	106	<.01	<.030	<.020	700	1000	.22
Date	Iron, water, unfltrd recover-able, mg/L (01046)	Iron, water, unfltrd recover-able, mg/L (01045)	Iron, water, unfltrd recover-able, mg/L (01056)	Manganese, water, unfltrd recover-able, mg/L (01055)	Manganese, water, unfltrd recover-able, mg/L (01065)	Nickel, water, unfltrd recover-able, mg/L (01065)	Nickel, water, unfltrd recover-able, mg/L (01067)	Zinc, water, unfltrd recover-able, mg/L (01090)	Zinc, water, unfltrd recover-able, mg/L (01092)		
OCT	13...	470	1070	1390	1380	70.0	70.0	225	230		
NOV	16...	650	1310	1480	1460	65.0	65.0	200	200		
DEC	16...	1060	1710	1430	1550	60.0	65.0	195	210		
JAN	25...	960	1840	1560	1920	65.0	65.0	220	385		
	25...	--	14300	--	1460	--	60.0	--	210		
FEB	23...	990	1730	1410	1540	60.0	65.0	195	220		
MAR	15...	950	1100	1280	1310	50.0	60.0	245	200		

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**404513076025811 -- Bell Wetland Cell A Outflow Pipe**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT 13...	1045	1028	89203	.67	479	3.3	9.4	81	5.3	5.9
NOV 16...	1115	1028	89203	.67	448	7.7	9.9	85	5.7	5.8
DEC 16...	1030	1028	89203	.17	466	3.0	8.6	74	5.2	5.7
JAN 25...	1315	1028	89203	.27	372	--	8.8	75	6.2	6.2
FEB 23...	1145	1028	89203	.33	384	1.2	10.0	85	5.9	6.1
MAR 15...	1415	1028	89203	.54	344	--	10.6	91	5.1	5.3

Date	Specific conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
OCT 13...	280	9.1	26.0	26.3	15.5	15.6	1.10	1.1	2.50	2.3
NOV 16...	253	8.6	27.0	27.7	16.2	16.7	1.00	1.1	2.60	2.5
DEC 16...	283	8.7	28.4	30.6	15.6	16.7	1.00	1.1	2.30	2.6
JAN 25...	297	8.3	30.9	28.5	16.7	15.5	1.10	1.0	2.60	2.6
FEB 23...	271	8.8	26.3	28.1	14.9	16.2	1.10	1.2	2.40	2.8
MAR 15...	248	8.7	21.1	23.5	14.1	15.8	1.10	1.2	2.50	2.5

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, unfltrd recover-able, mg/L (01106)	Aluminum, water, unfltrd recover-able, mg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT 13...	8	2.6	--	117	--	--	--	600	1000	--
NOV 16...	6	3.5	.01	124	.02	<.030	<.020	500	900	.02
DEC 16...	16	2.8	--	116	--	--	--	300	600	--
JAN 25...	22	2.5	--	117	--	--	--	200	500	--
FEB 23...	16	4.1	--	114	--	--	--	200	600	--
MAR 15...	4	2.9	<.01	106	.42	<.030	<.020	600	900	.20

Date	Iron, water, unfltrd recover-able, ug/L (01046)	Iron, water, unfltrd recover-able, ug/L (01045)	Manganese, water, fltrd, ug/L (01056)	Manganese, water, unfltrd recover-able, ug/L (01055)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover-able, ug/L (01067)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover-able, ug/L (01092)
OCT 13...	250	580	1220	1220	65.0	65.0	215	210
NOV 16...	410	760	1280	1300	60.0	65.0	185	190
DEC 16...	220	480	1080	1180	50.0	55.0	215	170
JAN 25...	100	320	1060	1000	50.0	45.0	155	150
FEB 23...	260	500	1040	1110	45.0	50.0	155	160
MAR 15...	860	1100	1160	1250	50.0	55.0	195	190

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ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**404511076025811 -- Bell Wetland Cell B Outflow Pipe**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, percent of saturation (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	
OCT										
13...	1000	1028	--	--	--	--	--	--	--	
13...	1015	1028	89203	.18	461	2.2	8.9	78	5.3	5.7
NOV										
16...	1130	1028	89203	.18	452	1.8	9.6	82	5.5	5.5
DEC										
16...	1100	1028	89203	.13	483	2.9	8.8	76	4.9	5.7
JAN										
25...	1300	1028	89203	.17	390	--	7.9	68	6.0	5.9
FEB										
23...	1155	1028	89203	.09	447	.3	8.3	71	6.1	6.2
MAR										
15...	1400	1028	89203	.45	351	--	10.1	89	4.7	4.8
Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, unfltrd, mg/L (00915)	Calcium unfltrd recover-able, mg/L (00916)	Magnesium water, unfltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, unfltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, unfltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
OCT										
13...	--	--	18.0	18.0	14.9	14.8	1.10	1.0	2.40	2.5
13...	270	9.2	23.9	24.1	15.6	15.7	1.20	1.2	2.30	2.3
NOV										
16...	254	8.5	24.7	25.7	16.3	16.8	1.20	1.2	2.60	2.5
DEC										
16...	285	8.6	27.1	28.2	15.7	16.2	1.30	1.3	2.30	2.6
JAN										
25...	287	8.4	27.8	24.9	16.6	14.8	1.40	1.2	2.60	2.1
FEB										
23...	288	8.6	28.0	29.3	16.2	17.2	1.40	1.5	2.50	2.5
MAR										
15...	246	9.5	19.2	19.0	13.8	13.4	1.10	1.1	2.40	2.0
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, unfltrd, mg/L (00940)	Fluoride, water, unfltrd, mg/L (00950)	Sulfate, water, unfltrd, mg/L (00945)	Nitrate, water, unfltrd, mg/L as N (00618)	Nitrite, water, unfltrd, mg/L as N (00613)	Orthophosphate, water, unfltrd, mg/L as P (00671)	Aluminum, water, unfltrd, mg/L (01106)	Aluminum, water, unfltrd recover-able, mg/L (01105)	Bromine water, unfltrd, mg/L (71871)
OCT										
13...	--	2.6	--	116	--	--	--	1900	1900	--
13...	7	2.8	--	115	--	--	--	800	1000	--
NOV										
16...	5	3.0	.01	126	.04	<.030	<.020	800	1000	.02
DEC										
16...	16	2.5	--	115	--	--	--	300	400	--
JAN										
25...	16	2.5	--	116	--	--	--	300	400	--
FEB										
23...	21	3.7	--	114	--	--	--	200	400	--
MAR										
15...	2	2.7	<.01	106	.40	<.030	<.020	900	1000	.21
Date	Iron, water, unfltrd recover-able, mg/L (01046)	Iron, water, unfltrd recover-able, mg/L (01045)	Manganese, water, unfltrd, mg/L (01056)	Manganese, water, unfltrd recover-able, mg/L (01055)	Nickel, water, unfltrd, mg/L (01065)	Nickel, water, unfltrd recover-able, mg/L (01067)	Zinc, water, unfltrd, mg/L (01090)	Zinc, water, unfltrd recover-able, mg/L (01092)		
OCT										
13...	1180	1630	1470	1460	70.0	75.0	240	240		
13...	140	260	1270	1260	65.0	65.0	210	210		
NOV										
16...	270	400	1350	1370	65.0	65.0	185	195		
DEC										
16...	60.0	120	1070	1090	50.0	50.0	160	155		
JAN										
25...	70.0	100	1130	1030	50.0	45.0	160	145		
FEB										
23...	30.0	40.0	890	930	40.0	45.0	135	140		
MAR										
15...	750	990	1220	1130	55.0	50.0	185	180		

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**404513076025812 -- Bell Wetland Cell A Spillway**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT 13...	1030	1028	89203	.24	621	6.7	9.7	83	3.6	4.0
NOV 16...	1100	1028	89203	.00	615	4.7	9.4	82	3.8	3.9
DEC 16...	1045	1028	89203	2.2	630	5.4	8.7	76	2.8	4.0
JAN 25...	1330	1028	89203	1.6	511	--	8.3	72	4.1	4.1
FEB 23...	1135	1028	89203	.60	619	4.5	9.5	85	3.8	4.0
MAR 15...	1330	1028	89203	.20	380	--	10.1	92	4.0	4.0

Date	Specific conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
OCT 13...	303	9.7	17.6	17.7	14.7	14.8	1.10	1.0	2.30	2.3
NOV 16...	318	9.3	18.8	19.0	15.2	15.5	1.00	1.0	2.50	2.5
DEC 16...	284	9.1	16.9	18.2	14.0	15.1	1.00	1.1	2.10	2.4
JAN 25...	274	9.4	18.2	16.0	15.2	13.4	1.10	1.0	2.50	2.4
FEB 23...	285	10.1	16.6	17.6	13.8	14.8	1.00	1.1	2.40	2.6
MAR 15...	134	11.1	17.7	17.0	14.1	13.4	1.10	1.0	2.40	2.4

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recover-able, mg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT 13...	.0	2.8	--	117	--	--	--	1900	1900	--
NOV 16...	.0	2.8	.01	126	.02	<.030	<.020	1500	1500	.02
DEC 16...	.0	3.2	--	116	--	--	--	1300	1400	--
JAN 25...	.0	2.4	--	118	--	--	--	1500	1400	--
FEB 23...	.0	3.8	--	112	--	--	--	1300	1400	--
MAR 15...	.0	3.5	<.01	107	.40	<.030	<.020	1100	1600	.22

Date	Iron, water, unfltrd recover-able, ug/L (01046)	Iron, water, unfltrd recover-able, ug/L (01045)	Manganese, water, fltrd, ug/L (01056)	Manganese, water, unfltrd recover-able, ug/L (01055)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover-able, ug/L (01067)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover-able, ug/L (01092)
OCT 13...	1160	1720	1450	1470	70.0	75.0	235	240
NOV 16...	1720	2260	1600	1610	70.0	70.0	215	215
DEC 16...	1340	1990	1470	1590	60.0	65.0	210	210
JAN 25...	1240	1430	1650	1500	70.0	60.0	225	195
FEB 23...	1620	2280	1510	1590	60.0	65.0	210	225
MAR 15...	1600	15200	1380	1250	60.0	55.0	210	210

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**404511076025812 -- Bell Wetland Cell B Spillway**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT 13...	1000	1028	89203	.73	631	7.0	9.6	84	3.7	4.1
NOV 16...	1045	1028	89203	.49	562	4.4	9.6	83	3.8	3.9
DEC 16...	1115	1028	89203	2.2	630	5.6	8.6	74	2.7	4.0
JAN 25...	1245	1028	89203	1.7	484	--	8.9	79	4.1	4.1
FEB 23...	1125	1028	89203	.84	609	4.4	10.4	91	3.9	4.0
MAR 15...	1345	1028	89203	.29	369	--	10.7	98	4.0	4.0

Date	Specific conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recoverable, mg/L (00929)
OCT 13...	301	9.4	--	--	--	--	--	--	--	--
NOV 16...	315	9.0	18.9	19.3	15.2	15.5	1.10	1.1	2.60	2.8
DEC 16...	283	8.8	17.3	18.4	14.2	15.2	1.00	1.1	2.20	2.5
JAN 25...	279	9.3	18.1	16.8	15.4	14.0	1.10	1.0	2.60	2.4
FEB 23...	282	9.4	17.3	17.4	14.0	14.3	1.00	1.0	2.50	2.4
MAR 15...	266	11.4	16.8	14.2	13.4	10.9	1.10	.9	2.40	2.0

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, unfltrd recoverable, mg/L (01106)	Aluminum, water, unfltrd recoverable, mg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT 13...	.0	--	--	--	--	--	--	--	--	--
NOV 16...	.0	2.8	<.01	125	.04	<.030	<.020	1500	1500	.01
DEC 16...	.0	4.1	--	117	--	--	--	1300	1400	--
JAN 25...	.0	2.4	--	118	--	--	--	1500	1400	--
FEB 23...	.0	3.9	--	113	--	--	--	1400	1400	--
MAR 15...	.0	2.8	<.01	107	.40	<.030	<.020	1100	1000	.21

Date	Iron, water, unfltrd recoverable, ug/L (01046)	Iron, water, unfltrd recoverable, ug/L (01045)	Manganese, water, fltrd, ug/L (01056)	Manganese, water, unfltrd recoverable, ug/L (01055)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recoverable, ug/L (01067)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recoverable, ug/L (01092)
OCT 13...	--	--	--	--	--	--	--	--
NOV 16...	1680	2220	1630	1610	70.0	70.0	210	215
DEC 16...	1380	1990	1480	1590	60.0	65.0	235	210
JAN 25...	1200	1500	1660	1540	70.0	60.0	230	205
FEB 23...	1530	2090	1540	1580	65.0	65.0	215	220
MAR 15...	1700	2620	1330	1050	55.0	50.0	200	165

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**404511076025813 -- Bell Wetland Cell B Flush Pipe**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JAN										
25...	1400	1028	89203	--	352	--	8.5	72	6.0	--
25...	1500	1028	89203	--	--	--	--	--	--	--
Date	Specif. conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium unfltrd recoverable, mg/L (00929)
JAN										
25...	289	8.1	--	25.5	--	14.4	--	1.5	--	2.5
25...	--	--	--	42.4	--	16.4	--	1.4	--	2.4
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate, water, fltrd, mg/L as N (00618)	Nitrite, water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Aluminum unfltrd recoverable, mg/L (01105)	Bromine water unfltrd, mg/L (71871)
JAN										
25...	--	--	--	--	--	--	--	--	353000	--
25...	--	--	--	--	--	--	--	--	70800	--
Date	Iron, water, fltrd, $\mu$ g/L (01046)	Iron, unfltrd recoverable, $\mu$ g/L (01045)	Iron, water, fltrd, $\mu$ g/L (01045)	Manganese, water, fltrd, $\mu$ g/L (01056)	Manganese, unfltrd recoverable, $\mu$ g/L (01055)	Nickel, water, fltrd, $\mu$ g/L (01065)	Nickel, unfltrd recoverable, $\mu$ g/L (01067)	Zinc, water, fltrd, $\mu$ g/L (01090)	Zinc, unfltrd recoverable, $\mu$ g/L (01092)	
JAN										
25...	--	--	460000	--	2200	--	65.0	--	500	
25...	--	--	141000	--	1900	--	65.0	--	400	



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**0146742494 -- Schuylkill R ab Bell Tunnel at Mary D, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT 13...	1130	1028	89203	2.3	394	2.7	11.5	101	5.8	6.4
NOV 16...	1215	1028	89203	2.1	413	1.1	11.7	96	6.1	6.2
DEC 16...	1215	1028	89203	4.8	335	10	13.4	102	5.0	5.9
JAN 25...	1500	1028	89203	2.6	363	--	13.0	97	6.1	6.1
FEB 23...	1300	1028	89203	3.1	382	2.7	12.5	99	6.2	6.3
MAR 15...	1200	1028	89203	2.4	285	--	13.1	103	5.9	6.3

Date	Specific conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recoverable, mg/L (00929)
OCT 13...	226	10.3	16.8	17.2	10.6	10.8	1.70	1.7	5.50	5.4
NOV 16...	219	6.9	16.3	16.8	10.2	10.3	1.60	1.6	6.00	6.2
DEC 16...	191	4.1	13.6	15.2	9.00	9.8	1.40	1.5	5.80	5.1
JAN 25...	209	3.3	15.9	16.5	10.4	10.8	1.80	1.6	6.10	5.9
FEB 23...	222	5.5	15.1	15.5	8.80	9.4	1.40	1.5	8.70	9.1
MAR 15...	223	5.0	15.0	16.3	9.00	10.1	1.50	1.6	7.50	7.8

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recoverable, mg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT 13...	9	7.9	--	75.7	--	--	--	<100	900	--
NOV 16...	8	9.5	.03	73.7	.42	.030	<.020	<100	700	.01
DEC 16...	7	6.8	--	65.8	--	--	--	<100	700	--
JAN 25...	7	8.4	--	74.9	--	--	--	<100	900	--
FEB 23...	8	17.4	--	64.9	--	--	--	200	600	--
MAR 15...	10	15.4	<.01	64.0	.68	<.030	<.020	<100	700	.20

Date	Iron, water, unfltrd recoverable, mg/L (01046)	Iron, water, unfltrd recoverable, mg/L (01045)	Manganese, water, fltrd, mg/L (01056)	Manganese, water, unfltrd recoverable, mg/L (01055)	Nickel, water, fltrd, mg/L (01065)	Nickel, water, unfltrd recoverable, mg/L (01067)	Zinc, water, fltrd, mg/L (01090)	Zinc, water, unfltrd recoverable, mg/L (01092)
OCT 13...	300	430	960	970	25.0	25.0	50.0	55.0
NOV 16...	380	440	960	960	25.0	25.0	50.0	45.0
DEC 16...	350	970	720	960	20.0	25.0	55.0	145
JAN 25...	380	840	980	1170	25.0	25.0	60.0	140
FEB 23...	820	460	1150	970	20.0	20.0	190	55.0
MAR 15...	330	530	900	930	20.0	20.0	55.0	55.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**0146742500 -- Schuylkill River bl Bell Tunnel at Mary D, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT 13...	0930	1028	89203	4.1	415	5.1	11.4	100	5.4	5.4
NOV 16...	1015	1028	89203	3.4	396	2.9	11.9	99	5.8	5.7
DEC 16...	1000	1028	89203	9.5	506	4.8	12.5	99	4.5	5.0
JAN 25...	1200	1028	89203	6.3	315	--	11.9	94	5.5	5.1
FEB 23...	1100	1028	89203	4.9	422	3.3	12.6	100	6.0	5.7
MAR 15...	1445	1028	89203	3.8	308	--	12.3	102	5.5	6.0

Date	Specific conductance, wat unfltrd, µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
OCT 13...	247	9.3	18.9	19.0	12.8	12.8	1.30	1.3	3.70	3.6
NOV 16...	242	6.8	18.6	19.8	12.2	12.7	1.30	1.3	4.60	4.5
DEC 16...	228	5.5	15.7	16.7	11.3	12.1	1.20	1.2	3.40	3.8
JAN 25...	226	5.3	16.7	16.4	12.1	11.7	1.50	1.3	3.70	3.5
FEB 23...	230	5.5	17.1	17.9	11.6	12.1	1.30	1.4	6.10	6.5
MAR 15...	229	7.5	16.6	18.4	10.5	12.0	1.30	1.5	5.70	6.1

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, unfltrd recover-able, µg/L (01106)	Aluminum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT 13...	3	5.8	--	96.9	--	--	--	600	1000	--
NOV 16...	4	7.0	.02	95.3	.22	<.030	<.020	300	900	.01
DEC 16...	2	10.2	--	88.9	--	--	--	600	900	--
JAN 25...	2	5.3	--	92.5	--	--	--	600	1000	--
FEB 23...	4	11.7	--	83.8	--	--	--	300	900	--
MAR 15...	5	10.4	<.01	78.9	.59	<.030	<.020	<100	900	.20

Date	Iron, water, unfltrd recover-able, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)
OCT 13...	470	970	1140	1130	45.0	45.0	160	130
NOV 16...	640	1080	1130	1150	40.0	40.0	110	110
DEC 16...	650	1050	1050	1090	40.0	40.0	145	125
JAN 25...	660	1050	1210	1290	40.0	40.0	180	175
FEB 23...	690	1040	1140	1200	35.0	35.0	115	115
MAR 15...	580	1420	960	1050	30.0	35.0	90.0	100



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**403958076191401 -- Otto Air Shaft**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Oxi- da- tion re- duc- tion poten- tial, mV (00090)	Tur- bi- dity, water, unfltrd field, NTU (61028)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
DEC 16...	1530	1028	89203	9.6	386	25	.7	7	5.6	5.6
Date	Specif. conduc- tance, wat unfl µS/cm 25 degC (00095)	Temper- ature, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover- able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, recover- able, mg/L (00927)	Potas- sium, water, fltrd, mg/L (00935)	Potas- sium, water, recover- able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover- able, mg/L (00929)
DEC 16...	500	12.0	35.0	38.1	33.4	37.3	1.20	1.3	7.10	7.6
Date	ANC, wat unfl fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Alum- inum, water, fltrd, µg/L (01106)	Alum- inum, water, unfltrd recover- able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
DEC 16...	35	2.1	--	214	--	--	--	300	2300	--
Date	Iron, water, fltrd, µg/L (01046)	Iron, water, recover- able, µg/L (01045)	Iron, water, unfltrd recover- able, µg/L (01045)	Mangan- ese, water, fltrd, µg/L (01056)	Mangan- ese, water, unfltrd recover- able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover- able, µg/L (01067)	Nickel, water, fltrd, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover- able, µg/L (01092)
DEC 16...		4730	6910	1880	2050	80.0	90.0	185	215	

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**0146784348 -- Otto Air Shaft near Llewellyn, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUL 14...	1445	1028	89203	2.7	273	--	6.5	61	6.7	6.3
AUG 10...	1400	1028	89203	2.5	333	--	6.6	62	6.0	6.2
SEP 12...	1400	1028	89203	2.0	219	--	7.7	72	6.0	6.2
Date	Specif. conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water, unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
JUL 14...	525	12.3	35.6	35.4	31.1	30.7	1.20	1.2	6.60	6.4
AUG 10...	532	12.3	39.0	33.6	34.4	29.5	1.30	1.1	7.30	6.4
SEP 12...	539	12.3	40.5	38.7	37.4	36.2	1.30	1.3	7.30	6.8
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate, water, fltrd, mg/L as N (00618)	Nitrite, water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, $\mu$ g/L (01106)	Aluminum, water, unfltrd recover-able, $\mu$ g/L (01105)	Bromine water, unfltrd, mg/L (71871)
JUL 14...	46	2.5	--	214	--	--	--	<100	1100	--
AUG 10...	46	2.4	--	222	--	--	--	200	1000	--
SEP 12...	43	2.2	--	227	--	--	--	200	1200	--
Date	Iron, water, fltrd, $\mu$ g/L (01046)	Iron, water, unfltrd recover-able, $\mu$ g/L (01045)	Iron, water, fltrd, $\mu$ g/L (01056)	Manganese, water, fltrd, $\mu$ g/L (01055)	Manganese, water, unfltrd recover-able, $\mu$ g/L (01055)	Nickel, water, fltrd, $\mu$ g/L (01065)	Nickel, water, unfltrd recover-able, $\mu$ g/L (01067)	Zinc, water, fltrd, $\mu$ g/L (01090)	Zinc, water, unfltrd recover-able, $\mu$ g/L (01092)	
JUL 14...	9390	9460	1840	1850	80.0	75.0	130	120		
AUG 10...	10900	9600	2050	1820	85.0	75.0	130	120		
SEP 12...	12700	12800	2470	2390	90.0	90.0	115	120		

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**0146784350 -- Otto Air Shaft, 400 M DS, nr Llewellyn, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
DEC 16...	1500	1028	89203	9.6	277	23	9.7	90	5.9	6.0
FEB 23...	1530	1028	89203	2.1	297	13	9.6	88	6.6	6.3
APR 28...	1520	1028	89203	2.1	291	--	9.2	85	6.3	6.5
JUN 16...	1500	1028	89203	.72	178	--	9.4	97	6.8	6.6
JUL 14...	1615	1028	89203	2.7	261	--	8.3	86	6.7	6.6
AUG 10...	1245	1028	89203	2.5	310	--	9.1	94	6.3	6.5
SEP 12...	1230	1028	89203	2.0	182	--	9.8	96	6.7	6.6

Date	Specific conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water unfltrd recoverable, mg/L (00929)
DEC 16...	499	11.8	35.7	38.3	34.6	36.9	1.30	1.3	7.50	7.6
FEB 23...	490	11.6	34.5	34.6	33.0	32.7	1.20	1.2	6.70	6.5
APR 28...	496	11.9	35.4	32.9	33.7	31.6	1.40	1.2	7.00	6.6
JUN 16...	523	16.7	45.1	44.9	37.2	36.5	1.80	1.6	18.1	6.3
JUL 14...	519	16.9	36.5	36.7	30.5	31.1	1.50	1.6	6.70	6.9
AUG 10...	528	16.9	39.8	36.7	34.3	31.6	1.50	1.4	7.30	6.9
SEP 12...	556	14.5	53.0	50.1	37.3	36.2	1.40	1.4	7.10	6.9

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, �g/L (01106)	Aluminum, water, unfltrd recoverable, �g/L (01105)	Bromine water unfltrd, mg/L (71871)
DEC 16...	37	2.0	--	210	--	--	--	200	2500	--
FEB 23...	39	3.5	--	207	--	--	--	<100	1500	--
APR 28...	39	2.4	<.01	230	<.01	<.030	<.020	200	1800	.22
JUN 16...	46	2.9	<.02	198	.81	<.060	<.040	<100	1000	.37
JUL 14...	44	2.5	--	211	--	--	--	<100	900	--
AUG 10...	40	2.5	--	221	--	--	--	<100	900	--
SEP 12...	53	2.2	--	227	--	--	--	<100	200	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**0146784350 -- Otto Air Shaft, 400 M DS, nr Llewellyn, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Iron, water, unfltrd recover- able, µg/L (01046)	Iron, water, unfltrd recover- able, µg/L (01045)	Mangan- ese, water, unfltrd recover- able, µg/L (01056)	Mangan- ese, water, unfltrd recover- able, µg/L (01055)	Nickel, water, unfltrd recover- able, µg/L (01065)	Nickel, water, unfltrd recover- able, µg/L (01067)	Zinc, water, unfltrd recover- able, µg/L (01090)	Zinc, water, unfltrd recover- able, µg/L (01092)
DEC 16...	4740	7780	1920	2040	80.0	85.0	190	215
FEB 23...	7900	8930	1950	1940	75.0	75.0	160	165
APR 28...	6110	8890	1820	1640	80.0	75.0	190	200
JUN 16...	8650	9140	2230	2060	85.0	85.0	150	150
JUL 14...	7140	8040	1740	1840	70.0	75.0	130	145
AUG 10...	8320	8670	1990	1910	80.0	75.0	140	110
SEP 12...	2210	3300	1630	1690	70.0	70.0	70.0	75.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**0146784338 -- Muddy Branch ab Otto Mine Discharge nr Branchdale, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
DEC 16...	1515	1028	89203	4.1	284	11	11.3	97	5.8	5.8
FEB 23...	1600	1028	89203	6.5	300	23	11.4	95	6.8	6.7
APR 28...	1540	1028	89203	1.1	276	--	9.7	90	6.8	6.6
JUN 16...	1530	1028	89203	.57	256	--	7.6	79	6.6	6.6
AUG 10...	1230	1028	89203	.48	362	--	7.6	80	6.5	6.7
SEP 12...	1200	1028	89203	.32	282	--	5.5	57	6.5	6.3

Date	Specific conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
DEC 16...	435	8.6	42.7	46.1	20.0	21.2	2.00	2.1	6.00	6.2
FEB 23...	478	7.3	39.4	44.1	16.7	18.5	2.00	2.2	20.2	22.1
APR 28...	469	12.6	47.6	48.3	20.6	21.3	2.30	2.2	6.80	6.8
JUN 16...	460	17.1	51.5	49.3	22.5	21.5	2.30	2.2	10.0	7.2
AUG 10...	433	18.0	46.3	39.8	20.2	16.7	2.30	2.0	7.10	6.1
SEP 12...	451	16.1	43.6	42.8	21.5	21.4	2.30	2.4	8.80	8.9

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recover-able, mg/L (01105)	Bromine water unfltrd mg/L (71871)
DEC 16...	14	7.0	--	185	--	--	--	<100	900	--
FEB 23...	21	38.0	--	154	--	--	--	<100	800	--
APR 28...	16	8.4	<.01	203	.48	<.030	<.020	<100	600	.26
JUN 16...	18	7.7	<.01	185	.86	<.030	<.020	400	400	.25
AUG 10...	20	7.4	--	183	--	--	--	<100	<100	--
SEP 12...	23	8.8	--	177	--	--	--	<100	200	--

Date	Iron, water, unfltrd recover-able, mg/L (01046)	Iron, water, unfltrd recover-able, mg/L (01045)	Manganese, water, fltrd, mg/L (01056)	Manganese, water, unfltrd recover-able, mg/L (01055)	Nickel, water, fltrd, mg/L (01065)	Nickel, water, unfltrd recover-able, mg/L (01067)	Zinc, water, fltrd, mg/L (01090)	Zinc, water, unfltrd recover-able, mg/L (01092)
DEC 16...	1930	2600	1700	1760	65.0	70.0	120	125
FEB 23...	1130	1600	1440	1560	45.0	50.0	85.0	100
APR 28...	850	1140	1680	1620	60.0	60.0	120	125
JUN 16...	510	490	2090	1960	65.0	60.0	115	105
AUG 10...	560	550	1700	1470	55.0	45.0	80.0	65.0
SEP 12...	230	380	1550	1560	40.0	45.0	55.0	90.0



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**0146784354 -- Muddy Branch bl Otto Mine Discharge ab Steins, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
DEC 16...	1415	1028	89203	14	260	20	11.1	99	6.2	6.2
FEB 23...	1500	1028	89203	8.6	256	36	11.4	100	6.9	6.7
APR 28...	1450	1028	89203	8.0	261	--	10.7	101	6.8	6.8
JUN 16...	1330	1028	89203	4.0	157	--	9.0	94	7.0	6.8
AUG 10...	1215	1028	89203	4.1	283	--	9.4	95	6.7	6.8
SEP 12...	1045	1028	89203	2.7	174	--	10.2	98	6.8	6.7

Date	Specific conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
DEC 16...	463	10.3	35.5	37.9	29.1	32.0	1.40	1.5	6.80	7.2
FEB 23...	462	9.8	32.5	35.3	26.0	28.2	1.30	1.4	9.30	9.7
APR 28...	494	12.5	36.4	40.2	30.3	33.7	1.50	1.6	6.60	7.2
JUN 16...	489	16.7	40.9	42.0	31.2	32.5	1.50	1.6	7.30	6.1
AUG 10...	494	16.0	40.2	34.5	30.9	26.1	1.60	1.4	7.30	6.3
SEP 12...	513	13.5	44.9	44.3	32.8	32.8	1.40	1.5	7.00	6.9

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recover-able, mg/L (01105)	Bromine water unfltrd mg/L (71871)
DEC 16...	28	3.2	--	194	--	--	--	<100	1700	--
FEB 23...	30	12.1	--	183	--	--	--	<100	1200	--
APR 28...	32	3.6	<.01	217	.42	<.030	<.020	<100	1200	.21
JUN 16...	32	3.7	<.02	183	<.02	<.060	<.040	<100	700	.36
AUG 10...	34	3.8	--	209	--	--	--	<100	400	--
SEP 12...	38	3.1	--	211	--	--	--	<100	200	--

Date	Iron, water, unfltrd recover-able, mg/L (01046)	Iron, water, unfltrd recover-able, mg/L (01045)	Manganese, water, fltrd, mg/L (01056)	Manganese, water, unfltrd recover-able, mg/L (01055)	Nickel, water, fltrd, mg/L (01065)	Nickel, water, unfltrd recover-able, mg/L (01067)	Zinc, water, fltrd, mg/L (01090)	Zinc, water, unfltrd recover-able, mg/L (01092)
DEC 16...	2950	4900	1760	1860	70.0	75.0	145	175
FEB 23...	3980	6030	1620	1730	60.0	65.0	115	135
APR 28...	3470	4820	1680	1780	70.0	75.0	160	185
JUN 16...	4470	5960	1850	1880	70.0	70.0	115	125
AUG 10...	4170	4510	1750	1520	65.0	60.0	90.0	85.0
SEP 12...	1760	2730	1580	1610	60.0	55.0	65.0	65.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**0146784358 -- Muddy Branch bl Otto Mine Discharge bl Steins, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
DEC 16...	1345	1028	89203	16	259	84	11.4	99	6.2	6.3
FEB 23...	1430	1028	89203	9.7	270	110	11.4	99	6.8	6.7
APR 28...	1505	1028	89203	11	254	--	10.6	100	6.9	6.9
JUN 16...	1115	1028	89203	5.2	170	--	9.6	98	7.0	6.8
AUG 10...	1015	1028	89203	4.3	295	--	9.1	91	6.8	6.8

Date	Specific conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium, water, fltrd, mg/L (00915)	Calcium, water, unfltrd recover-able, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recover-able, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)
DEC 16...	413	9.4	33.2	34.6	26.5	27.8	1.30	1.4	6.00	6.3
FEB 23...	415	9.0	27.9	33.1	21.7	25.7	1.10	1.3	8.10	9.5
APR 28...	456	12.7	35.5	36.9	28.6	30.1	1.40	1.4	6.30	6.6
JUN 16...	329	16.5	39.7	41.4	29.5	31.2	1.40	1.5	6.80	5.9
AUG 10...	476	15.4	39.1	36.0	29.3	26.8	1.50	1.5	6.80	6.3

Date	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate, water, fltrd, mg/L as N (00618)	Nitrite, water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, �g/L (01106)	Aluminum, water, unfltrd recover-able, �g/L (01105)	Bromine, water, unfltrd recover-able, mg/L (71871)
DEC 16...	25	3.5	--	173	--	--	--	<100	1500	--
FEB 23...	28	11.6	--	161	--	--	--	<100	1000	--
APR 28...	32	3.7	<.01	194	.43	<.030	<.020	<100	1000	.21
JUN 16...	34	3.8	<.02	172	.81	<.060	<.040	200	600	.36
AUG 10...	36	3.9	--	195	--	--	--	<100	400	--

Date	Iron, water, unfltrd recover-able, �g/L (01046)	Iron, water, unfltrd recover-able, �g/L (01045)	Manganese, water, fltrd, �g/L (01056)	Manganese, water, unfltrd recover-able, �g/L (01055)	Nickel, water, fltrd, �g/L (01065)	Nickel, water, unfltrd recover-able, �g/L (01067)	Zinc, water, fltrd, �g/L (01090)	Zinc, water, unfltrd recover-able, �g/L (01092)
DEC 16...	2390	4320	1530	1630	60.0	65.0	125	150
FEB 23...	2850	4740	1280	1520	45.0	55.0	95.0	115
APR 28...	2750	3810	1530	1510	60.0	65.0	135	160
JUN 16...	3610	5220	1790	1880	65.0	65.0	105	115
AUG 10...	3080	4000	1590	1520	60.0	55.0	80.0	80.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**404001076191301 -- Otto Mine Airshaft Wetland Cell 1 Outflow**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUL 14...	1515	1028	89203	2.7	279	--	7.4	72	7.4	6.4
AUG 10...	1345	1028	89203	2.5	342	--	8.4	82	6.1	6.3
SEP 12...	1330	1028	89203	2.0	209	--	9.8	94	6.3	6.3

  

Date	Specific conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium unfltrd recover-able, mg/L (00929)
JUL 14...	521	14.5	34.4	35.6	30.2	31.1	1.10	1.3	6.20	6.6
AUG 10...	529	14.2	39.2	33.4	34.3	29.0	1.40	1.2	7.40	6.3
SEP 12...	535	16.1	39.2	38.8	35.9	36.3	1.20	1.3	6.50	6.8

  

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate, water, fltrd, mg/L as N (00618)	Nitrite, water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, $\mu$ g/L (01106)	Aluminum unfltrd recover-able, $\mu$ g/L (01105)	Bromine water unfltrd, mg/L (71871)
JUL 14...	43	2.4	--	213	--	--	--	<100	--	--
AUG 10...	43	2.5	--	222	--	--	--	<100	900	--
SEP 12...	41	2.2	--	228	--	--	--	<100	800	--

  

Date	Iron, water, fltrd, $\mu$ g/L (01046)	Iron unfltrd recover-able, $\mu$ g/L (01045)	Manganese, water, fltrd, $\mu$ g/L (01056)	Manganese unfltrd recover-able, $\mu$ g/L (01055)	Nickel, water, fltrd, $\mu$ g/L (01065)	Nickel unfltrd recover-able, $\mu$ g/L (01067)	Zinc, water, fltrd, $\mu$ g/L (01090)	Zinc unfltrd recover-able, $\mu$ g/L (01092)
JUL 14...	8390	9080	1730	1850	75.0	75.0	115	130
AUG 10...	10200	9130	2040	1810	85.0	70.0	155	110
SEP 12...	10300	11400	2370	2390	90.0	85.0	110	115

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**40406076191001 -- Otto Mine Airshaft Wetland Cell 2 Outflow**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUL 14...	1530	1028	89203	2.7	278	--	7.8	78	7.3	6.4
AUG 10...	1330	1028	89203	2.5	359	--	9.3	96	6.2	6.3
SEP 12...	1315	1028	89203	2.0	217	--	10.0	104	6.4	6.2
Date	Specif. conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water, unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
JUL 14...	522	15.5	35.7	35.7	30.9	30.8	1.40	1.4	6.50	6.7
AUG 10...	529	17.0	38.8	33.4	34.3	28.9	1.40	1.2	7.30	6.4
SEP 12...	534	16.9	38.2	38.5	35.2	36.1	1.20	1.3	6.60	6.3
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, $\mu$ g/L (01106)	Aluminum, water, unfltrd recover-able, $\mu$ g/L (01105)	Bromine water, unfltrd, mg/L (71871)
JUL 14...	42	2.4	--	214	--	--	--	<100	900	--
AUG 10...	42	2.9	--	223	--	--	--	<100	900	--
SEP 12...	38	2.2	--	229	--	--	--	<100	800	--
Date	Iron, water, fltrd, $\mu$ g/L (01046)	Iron, water, unfltrd recover-able, $\mu$ g/L (01045)	Iron, water, fltrd, $\mu$ g/L (01056)	Manganese, water, unfltrd recover-able, $\mu$ g/L (01055)	Manganese, water, fltrd, $\mu$ g/L (01055)	Nickel, water, fltrd, $\mu$ g/L (01065)	Nickel, water, unfltrd recover-able, $\mu$ g/L (01067)	Zinc, water, fltrd, $\mu$ g/L (01090)	Zinc, water, unfltrd recover-able, $\mu$ g/L (01092)	
JUL 14...	7940	8490	1780	1810	75.0	75.0	125	130		
AUG 10...	9160	8500	2020	1760	80.0	70.0	140	105		
SEP 12...	8730	10000	2240	2340	85.0	85.0	100	110		

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**404005076190901 -- Otto Mine Airshaft Wetlands Cell 3 Outflow**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUL 14...	1545	1028	89203	2.7	268	--	9.0	93	6.7	6.5
AUG 10...	1315	1028	89203	2.5	372	--	9.1	95	6.1	6.3
SEP 12...	1300	1028	89203	1.1	197	--	11.2	120	6.4	6.3
Date	Specif. conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water, unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
JUL 14...	521	16.7	37.1	37.5	31.7	31.5	1.50	1.6	6.80	6.9
AUG 10...	528	16.7	38.5	36.8	33.6	31.8	1.50	1.4	7.20	7.1
SEP 12...	528	18.4	38.1	39.1	35.4	36.5	1.30	1.4	6.60	6.9
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recover-able, mg/L (01105)	Bromine water, unfltrd mg/L (71871)
JUL 14...	43	2.9	--	211	--	--	--	<100	1000	--
AUG 10...	41	2.5	--	221	--	--	--	<100	900	--
SEP 12...	37	2.2	--	227	--	--	--	<100	800	--
Date	Iron, water, fltrd, $\mu$ g/L (01046)	Iron, water, unfltrd recover-able, $\mu$ g/L (01045)	Iron, water, unfltrd recover-able, $\mu$ g/L (01045)	Manganese, water, fltrd, $\mu$ g/L (01056)	Manganese, water, unfltrd recover-able, $\mu$ g/L (01055)	Nickel, water, fltrd, $\mu$ g/L (01065)	Nickel, water, unfltrd recover-able, $\mu$ g/L (01067)	Zinc, water, fltrd, $\mu$ g/L (01090)	Zinc, water, unfltrd recover-able, $\mu$ g/L (01092)	
JUL 14...	7240	8650	1820	1840	75.0	75.0	115	120		
AUG 10...	8240	9210	1960	1930	80.0	80.0	155	120		
SEP 12...	7990	9560	2220	2310	80.0	85.0	100	120		

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**404008076190601 -- Otto Mine Airshaft Limestone Drain Outflow**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUL 14...	1600	1028	89203	.00	253	--	5.8	57	7.2	7.0
AUG 10...	1300	1028	89203	.04	446	--	4.6	46	6.4	6.5
SEP 12...	1245	1028	89203	.89	212	--	9.7	94	6.7	6.6

  

Date	Specific conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water, unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
JUL 14...	603	15.5	71.6	65.2	25.9	24.6	2.10	2.3	6.50	6.3
AUG 10...	529	15.5	61.8	57.6	24.1	22.4	2.40	2.4	6.90	6.6
SEP 12...	567	13.8	53.3	55.0	35.1	35.8	1.40	1.4	6.20	6.9

  

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate, water, fltrd, mg/L as N (00618)	Nitrite, water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, $\mu$ g/L (01106)	Aluminum, water, unfltrd recover-able, $\mu$ g/L (01105)	Bromine water, unfltrd, mg/L (71871)
JUL 14...	104	3.3	--	184	--	--	--	<100	<100	--
AUG 10...	85	4.2	--	181	--	--	--	<100	<100	--
SEP 12...	58	2.3	--	229	--	--	--	<100	<100	--

  

Date	Iron, water, fltrd, $\mu$ g/L (01046)	Iron, water, unfltrd recover-able, $\mu$ g/L (01045)	Manganese, water, fltrd, $\mu$ g/L (01056)	Manganese, water, unfltrd recover-able, $\mu$ g/L (01055)	Nickel, water, fltrd, $\mu$ g/L (01065)	Nickel, water, unfltrd recover-able, $\mu$ g/L (01067)	Zinc, water, fltrd, $\mu$ g/L (01090)	Zinc, water, unfltrd recover-able, $\mu$ g/L (01092)
JUL 14...	70.0	110	130	200	25.0	25.0	65.0	40.0
AUG 10...	210	190	390	390	25.0	25.0	40.0	45.0
SEP 12...	1020	1200	1420	1470	65.0	65.0	60.0	60.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**404320076103201 -- Pine Forest Mine**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dis-solved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
MAR 14...	1430	1028	89203	3.2	312	--	.7	6	5.5	5.7
SEP 29...	1215	1028	89203	2.1	286	--	.2	2	5.6	6.0

  

Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
MAR 14...	791	11.4	58.7	51.8	61.3	53.6	1.50	1.3	4.00	3.3
SEP 29...	636	11.6	57.7	59.0	58.1	59.2	1.50	1.5	5.00	4.7

  

Date	ANC, wat unfltrd lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum water, fltrd, mg/L (01106)	Aluminum water, unfltrd recover-able, mg/L (01105)	Bromine water unfltrd mg/L (71871)
MAR 14...	33	3.2	<.02	414	<.02	<.060	<.040	500	500	.39
SEP 29...	39	4.5	--	347	--	--	--	300	400	--

  

Date	Iron, water, unfltrd recover-able, mg/L (01046)	Iron, water, unfltrd recover-able, mg/L (01045)	Manganese water, fltrd, mg/L (01056)	Manganese water, unfltrd recover-able, mg/L (01055)	Nickel, water, fltrd, mg/L (01065)	Nickel, water, unfltrd recover-able, mg/L (01067)	Zinc, water, fltrd, mg/L (01090)	Zinc, water, unfltrd recover-able, mg/L (01092)
MAR 14...	12600	10900	4210	3520	80.0	70.0	130	115
SEP 29...	16300	16600	4380	4430	85.0	90.0	140	130

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**0146748710 -- L Wolf Creek ab Pine Forest AMD at St. Clair, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
MAR 14...	1445	1028	89203	3.1	302	--	9.0	83	5.8	6.0
SEP 29...	1230	1028	89203	.00	312	--	4.9	48	5.7	5.9

  

Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recoverable, mg/L (00929)
MAR 14...	673	11.6	55.2	49.8	49.7	43.4	1.90	1.5	4.60	3.8
SEP 29...	361	15.1	42.8	40.3	25.3	23.4	1.50	1.4	3.10	3.1

  

Date	ANC, wat unfltrd lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recoverable, mg/L (01105)	Bromine water unfltrd mg/L (71871)
MAR 14...	14	3.5	<.01	372	<.01	<.030	<.020	200	1000	.23
SEP 29...	12	3.8	--	185	--	--	--	<100	200	--

  

Date	Iron, water, unfltrd recoverable, mg/L (01046)	Iron, water, unfltrd recoverable, mg/L (01045)	Manganese water, fltrd, mg/L (01056)	Manganese water, unfltrd recoverable, mg/L (01055)	Nickel, water, fltrd, mg/L (01065)	Nickel, water, unfltrd recoverable, mg/L (01067)	Zinc, water, fltrd, mg/L (01090)	Zinc, water, unfltrd recoverable, mg/L (01092)
MAR 14...	7920	7560	5590	4600	95.0	80.0	160	145
SEP 29...	180	290	950	900	30.0	30.0	80.0	65.0



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**404705076003201 -- Reevesdale S Dip Tunnel**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dis-solved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
MAR 15...	1530	1028	89203	.67	325	--	.7	7	4.1	4.5
SEP 29...	1400	1028	89203	.04	310	--	.1	.0	5.8	5.8

  

Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
MAR 15...	164	10.5	10.1	11.8	8.90	10.4	.90	1.0	.90	.8
SEP 29...	165	10.6	12.5	12.7	8.20	8.6	.60	.6	1.30	1.5

  

Date	ANC, wat unfltrd lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum water, fltrd, mg/L (01106)	Aluminum water, unfltrd recover-able, mg/L (01105)	Bromine water, unfltrd mg/L (71871)
MAR 15...	.0	1.2	<.01	64.0	<.01	<.030	<.020	1000	1200	.21
SEP 29...	26	2.6	--	59.8	--	--	--	200	400	--

  

Date	Iron, water, unfltrd recover-able, mg/L (01046)	Iron, water, unfltrd recover-able, mg/L (01045)	Manganese water, fltrd, mg/L (01056)	Manganese water, unfltrd recover-able, mg/L (01055)	Nickel, water, fltrd, mg/L (01065)	Nickel, water, unfltrd recover-able, mg/L (01067)	Zinc, water, fltrd, mg/L (01090)	Zinc, water, unfltrd recover-able, mg/L (01092)
MAR 15...	2030	3470	870	950	45.0	50.0	140	165
SEP 29...	12200	13600	820	900	30.0	30.0	95.0	55.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**01467688 -- WB Schuylkill River ab Pine Knot Disch at Duncott**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUL 26...	1045	1028	89203	6.5	404	--	8.2	90	5.4	5.2
SEP 29...	0845	1028	89203	.12	339	--	7.0	71	4.8	5.1

  

Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recoverable, mg/L (00929)
JUL 26...	100	20.3	8.00	7.0	5.20	4.5	.70	.5	6.00	5.3
SEP 29...	790	16.4	90.3	88.3	68.6	64.8	1.70	1.5	7.00	6.3

  

Date	ANC, wat unfltrd lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum water, fltrd, mg/L (01106)	Aluminum water, unfltrd recoverable, mg/L (01105)	Bromine water, unfltrd mg/L (71871)
JUL 26...	2	11.8	--	35.7	--	--	--	<100	400	--
SEP 29...	3	5.1	--	496	--	--	--	2100	3400	--

  

Date	Iron, water, unfltrd recoverable, mg/L (01046)	Iron, water, unfltrd recoverable, mg/L (01045)	Manganese water, fltrd, mg/L (01056)	Manganese water, unfltrd recoverable, mg/L (01055)	Nickel water, fltrd, mg/L (01065)	Nickel water, unfltrd recoverable, mg/L (01067)	Zinc water, fltrd, mg/L (01090)	Zinc water, unfltrd recoverable, mg/L (01092)
JUL 26...	130	300	210	190	10.0	10.0	45.0	25.0
SEP 29...	500	660	3170	3010	140	130	380	270

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**01467689 -- Pine Knot Disch 500 m bl Tunnel at Duncott, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUL 26...	1100	1028	89203	22	337	--	11.1	101	5.6	6.5
SEP 29...	0915	1028	89203	9.3	303	--	10.4	95	6.6	6.8

  

Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recoverable, mg/L (00929)
JUL 26...	511	11.1	43.0	37.1	45.9	38.8	1.30	1.2	7.50	6.3
SEP 29...	458	11.1	47.9	42.3	48.4	41.0	1.40	1.1	8.30	6.9

  

Date	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recoverable, mg/L (01105)	Bromine water, unfltrd, mg/L (71871)
JUL 26...	32	11.0	--	268	--	--	--	<100	800	--
SEP 29...	42	10.4	--	251	--	--	--	<100	600	--

  

Date	Iron, water, unfltrd recoverable, mg/L (01046)	Iron, water, unfltrd recoverable, mg/L (01045)	Manganese water, fltrd, mg/L (01056)	Manganese water, unfltrd recoverable, mg/L (01055)	Nickel, water, fltrd, mg/L (01065)	Nickel, water, unfltrd recoverable, mg/L (01067)	Zinc, water, fltrd, mg/L (01090)	Zinc, water, unfltrd recoverable, mg/L (01092)
JUL 26...	5770	5590	2560	2250	70.0	60.0	175	150
SEP 29...	6800	6960	2750	2320	65.0	55.0	125	120

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**01467691 -- Oak Hill Disch 200 m bl Borehole at Duncott**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUL 26...	1245	1028	89203	5.7	212	--	2.6	26	6.2	6.5
SEP 29...	1030	1028	89203	4.3	248	--	3.8	38	6.3	6.7
Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water, unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recoverable, mg/L (00929)
JUL 26...	882	16.4	103	89.6	58.3	50.6	2.40	2.1	33.7	30.0
SEP 29...	929	15.0	104	109	55.2	60.4	1.70	2.1	24.2	32.4
Date	ANC, wat unfltrd lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum water, fltrd, mg/L (01106)	Aluminum water, unfltrd recoverable, mg/L (01105)	Bromine water, unfltrd mg/L (71871)
JUL 26...	155	6.0	--	446	--	--	--	<100	300	--
SEP 29...	156	5.2	--	438	--	--	--	<100	200	--
Date	Iron, water, unfltrd recoverable, mg/L (01046)	Iron, water, unfltrd recoverable, mg/L (01045)	Manganese water, fltrd, mg/L (01056)	Manganese water, unfltrd recoverable, mg/L (01055)	Nickel, water, fltrd, mg/L (01065)	Nickel, water, unfltrd recoverable, mg/L (01067)	Zinc, water, fltrd, mg/L (01090)	Zinc, water, unfltrd recoverable, mg/L (01092)		
JUL 26...	18100	16000	4010	3600	55.0	45.0	55.0	60.0		
SEP 29...	17200	19800	3150	3990	40.0	50.0	35.0	35.0		

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**01467692 -- WB Schuylkill R bl Oak Hill Borehole at Duncott**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUL 26...	1315	1028	89203	34	273	--	9.0	88	6.3	6.6
SEP 29...	1045	1028	89203	14	266	--	8.8	82	6.4	6.8

  

Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recoverable, mg/L (00929)
JUL 26...	521	14.6	48.4	42.5	41.4	35.1	1.40	1.2	12.2	10.7
SEP 29...	643	12.2	66.1	61.7	52.0	48.1	1.60	1.4	15.2	13.6

  

Date	ANC, wat unfltrd lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recoverable, mg/L (01105)	Bromine water, unfltrd mg/L (71871)
JUL 26...	48	10.3	--	258	--	--	--	<100	600	--
SEP 29...	72	9.5	--	307	--	--	--	<100	600	--

  

Date	Iron, water, unfltrd recoverable, mg/L (01046)	Iron, water, unfltrd recoverable, mg/L (01045)	Manganese water, fltrd, mg/L (01056)	Manganese water, unfltrd recoverable, mg/L (01055)	Nickel, water, fltrd, mg/L (01065)	Nickel, water, unfltrd recoverable, mg/L (01067)	Zinc, water, fltrd, mg/L (01090)	Zinc, water, unfltrd recoverable, mg/L (01092)
JUL 26...	7030	6720	2440	2130	55.0	50.0	120	105
SEP 29...	10000	12000	3190	2820	55.0	55.0	100	95.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**01467752 -- WB Schuylkill River ab West Cr near Pottsville, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
AUG 23...	1030	1028	89203	22	228	--	9.3	89	7.1	6.8
Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water, unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)
AUG 23...	588	13.6	58.4	57.2	48.1	47.2	2.50	2.4	18.4	17.9
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Bromine water, unfltrd mg/L (71871)
AUG 23...	52	16.4	--	275	--	--	--	<100	300	--
Date	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)	
AUG 23...	1840	3640	3000	3000	3000	55.0	55.0	70.0	75.0	

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**01467861 -- West Cr West Branch Schuylkill near Pottsville, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Oxi- dation re- duction poten- tial, mV (00090)	Tur- bidity, water, unfltrd field, NTU (61028)	Dis- solved oxygen, of sat- uration mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
AUG 23...	1145	1028	89203	--	336	--	8.3	83	7.9	7.4
Date	Specif. conduc- tance, wat unfl µS/cm 25 degC (00095)	Temper- ature, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover- able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, recover- able, mg/L (00927)	Potas- sium, water, fltrd, mg/L (00935)	Potas- sium, water, recover- able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover- able, mg/L (00929)
AUG 23...	462	15.5	44.0	43.0	30.0	29.1	2.30	2.1	14.5	13.7
Date	ANC, wat unfl fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Alum- inum, water, fltrd, µg/L (01106)	Alum- inum, water, unfltrd recover- able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
AUG 23...	64	7.3	--	168	--	--	--	<100	<100	--
Date	Iron, water, unfltrd fltrd, µg/L (01046)	Iron, water, recover- able, µg/L (01045)	Iron, water, unfltrd recover- able, µg/L (01045)	Mangan- ese, water, fltrd, µg/L (01056)	Mangan- ese, water, unfltrd recover- able, µg/L (01055)	Nickel, water, unfltrd fltrd, µg/L (01065)	Nickel, water, unfltrd recover- able, µg/L (01067)	Nickel, water, unfltrd fltrd, µg/L (01067)	Zinc, water, unfltrd fltrd, µg/L (01090)	Zinc, water, unfltrd recover- able, µg/L (01092)
AUG 23...		30.0	240	180	190	15.0	15.0	<5.00	<5.00	

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**01467492 -- Mill Cr ab Schuylkill River at Port Carbon, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Oxi- dation re- duction poten- tial, mV (00090)	Tur- bidity, water, unfltrd field, NTU (61028)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
AUG 23...	1245	1028	89203	12	271	--	8.9	90	6.9	6.4
Date	Specif. conduc- tance, wat unfl µS/cm 25 degC (00095)	Temper- ature, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover- able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, recover- able, mg/L (00927)	Potas- sium, water, fltrd, mg/L (00935)	Potas- sium, water, recover- able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover- able, mg/L (00929)
AUG 23...	373	17.3	31.1	30.3	24.3	23.8	2.40	2.5	19.1	18.6
Date	ANC, wat unfl fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Alum- inum, water, fltrd, µg/L (01106)	Alum- inum, water, unfltrd recover- able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
AUG 23...	10	25.5	--	155	--	--	--	<100	700	--
Date	Iron, water, unfltrd recover- able, µg/L (01046)	Iron, water, recover- able, µg/L (01045)	Iron, water, unfltrd recover- able, µg/L (01045)	Mangan- ese, water, unfltrd recover- able, µg/L (01056)	Mangan- ese, water, unfltrd recover- able, µg/L (01055)	Nickel, water, unfltrd recover- able, µg/L (01065)	Nickel, water, unfltrd recover- able, µg/L (01067)	Nickel, water, unfltrd recover- able, µg/L (01090)	Zinc, water, unfltrd recover- able, µg/L (01092)	Zinc, water, unfltrd recover- able, µg/L (01092)
AUG 23...		690	2010	2000	2000	40.0	40.0	70.0	75.0	



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**01467471 -- Schuylkill River ab Mill Creek at Port Carbon, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
AUG 23...	1345	1028	89203	10	362	--	9.2	94	6.8	6.6
Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover, mg/L (00929)
AUG 23...	411	16.4	42.0	41.2	23.9	23.6	1.60	1.5	7.50	7.1
Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover, mg/L (00929)
AUG 23...	411	16.4	42.0	41.2	23.9	23.6	1.60	1.5	7.50	7.1
Date	ANC, wat unfltrd fixed pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate, water, fltrd, mg/L (00945)	Nitrate, water, fltrd, mg/L as N (00618)	Nitrite, water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recover, mg/L (01105)	Bromine, water, unfltrd mg/L (71871)
AUG 23...	20	6.3	--	179	--	--	--	<100	400	--
Date	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover, µg/L (01045)	Iron, water, unfltrd recover, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover, µg/L (01092)	
AUG 23...		920	2350	1000	1000	40.0	40.0	45.0	50.0	

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL RIVER BASIN**

**01469700 -- Little Schuylkill River at South Tamaqua, PA**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
AUG 23...	1445	1028	89203	--	314	--	9.0	99	7.3	7.2
Date	Specif. conductance, wat unfltrd 25 degC (00095)	Temperature, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water, unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)
AUG 23...	543	19.9	51.4	49.8	31.1	29.8	2.30	2.2	19.6	18.3
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Bromine water, unfltrd mg/L (71871)
AUG 23...	30	14.6	--	223	--	--	--	<100	500	--
Date	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)	
AUG 23...	90.0	1230	2000	2000	2000	40.0	40.0	70.0	95.0	