

US EPA ARCHIVE DOCUMENT

Pennsylvania Remining Monitoring
Project XL Pilot Study

Appendices
Site Summary and Monitoring Data

Pilot No.	Permittee	Site Name	Permit No.	County	Township(s)	Permit Date	COA Date
1a	Sky Haven Coal Co.	Surveyor Run	17930117	Clearfield	Goshen	5/8/95	2/7/01
1b	Sky Haven Coal Co.	Ridge Road	17990101	Clearfield	Girard	2/7/01	2/7/01
2	Amerikohl	Rathmel	33990101	Jefferson	Winslow	7/22/99	10/17/01
3	River Hill Coal Co.	Mid Penn No. 1	17990107	Clearfield	Bigler	7/5/01	7/5/01
4	River Hill Coal Co.	Kasubick	17990103	Clearfield	Bigler	8/20/02	8/20/02
5	P & N Coal Co.	Benezette Operation	24020102	Elk	Benezette	11/19/02	11/19/02
6	King Coal Sales-	Royal Operation	17010115	Clearfield	Morris, Boggs	11/27/02	11/27/02
7	River Hill Coal Co.	Wheatfield Operation	32000108	Indiana	West Wheatfield	12/23/04	12/23/04
8	Ebensburg Power Co.	Nanty Glo West Ref. Site	11020202	Cambria	Nanty Glo, Jackson	10/7/04	10/7/04

Pilot No.	Watershed	Site Status	Month Started	Permit Acres	Mon. Point I.D.	Latitude	Longitude	Coal Seams
1a	Surveyor Run	active	Jul-95	327.0	MP 6	41-03-59	078-19-44	UK, LF, UF
1b	Surveyor Run	active	Mar-02	149.0	MP 6	41-03-59	078-19-44	LK, MK, UK, LF, UF
2	Soldier Run	completed	Jul-05	127.8	S-4	41-05-21	078-49-52	LF
3	Pine Run	active	Oct-04	234.5	MP 24	40-50-58	078-27-17	Cl, LK
4	Upper Morgan Run	active	Aug-02	228.8	MP 2	40-51-03	078-24-25	Cl, LK, MK, UK, LF, UF
5	Porcupine Run	active	Jun-03	118.9	MP 6	41-21-42	078-21-04	MK, UK, LF, Jtn. Lmst.
6	Emigh Run	regraded	Dec-02	190.1	MP 37	40-56-30	078-15-08	LK (3 splits)
7	UNT to Conemaugh Riv.	active	Oct-09	759.2	VF 13	40-24-08	079-08-25	LK3, LK2, UF
8	Pergrin Run	active	Oct-05	41.4	NW 14	40-27-41	078-50-20	refuse

Project XL Water Quality Oct 07 - Sept 08 water year

P & N Coal Co. Inc., Benzette Operation, SMP #24020102

In-Stream Monitoring Point MP6 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	209	12.9	16.3	17.15	953.5
Current median	111	12.2	18.2	17.91	1194
Statistically significant?	yes	no	no	no	

Subchapter F Point MP 17 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	257	34.71	5.63		
Current median	949	224.8	12.74	62.13	1651
Statistically significant?	yes	yes	no		

Subchapter F Point MP 19 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	49.9	2.8	4.19		
Current median	15.9	0.93	3.44	2.01	
Statistically significant?	yes	no	no		

Project XL Water Quality Oct 06 - Sept 07 water year

P & N Coal Co. Inc., Benzette Operation, SMP #24020102

In-Stream Monitoring Point MP6 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	209	12.9	16.3	17.15	953.5
Current median	159	18.6	16.0	16.88	1218
Statistically significant?	no	yes	no	no	

Subchapter F Point MP 17 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	257	34.71	5.63		
Current median	891	230.24	17.71	50.31	1876
Statistically significant?	yes	yes	yes		

Subchapter F Point MP 19 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	49.9	2.8	4.19		
Current median	18.4	1.0	2.95	1.29	131
Statistically significant?	no	no	no		

Project XL Water Quality Oct 05 - Sept 06 water year

P & N Coal Co. Inc., Benzette Operation, SMP #24020102

In-Stream Monitoring Point MP6 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	209	12.9	16.3	17.15	953.5
Current median	217	20.9	12.3	19.6	1218
Statistically significant?	no	yes	no	no	

Subchapter F Point MP 17 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	257	34.71	5.63		
Current median	1576	512	15.1	101	5167
Statistically significant?	yes	yes	yes		

Subchapter F Point MP 19 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	49.9	2.8	4.19		
Current median	234	1.64	4.57	2.63	201
Statistically significant?	no	no	no		

Project XL Water Quality Oct 04 - Sept 05 water year

P & N Coal Co. Inc., Benezette Operation, SMP #24020102

In-Stream Monitoring Point MP6 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	242.7	13.3	14.9	18.3	953.5
Current median	177	8.6	12.5	16.1	
Statistically significant?	no	no	no	no	

Subchapter F Point MP 17 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	478.8	68.3	11.15		
Current median	755.9	176.6	21.62	52.2	1941
Statistically significant?	yes	yes	yes		

Subchapter F Point MP 19 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	80.1	6.97	5.87		
Current median	22.5	1.2	3.7	2	155.4
Statistically significant?	no	no	no		

Project XL Water Quality Oct 07 - Sept 08 water year

River Hill Coal Company, Kasubic Operation, SMP #17990103

In-Stream Monitoring Point MP2 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	98.0	7.40	9.72	4.86	539
Current median	50	3.03	7.69	3.75	489
Statistically significant?	yes	yes	no	no	no

Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	72.63	22.34	4.76	0.56	384
Current median	-1.33	1.42	2.72		424
Statistically significant?	yes	yes	yes		no

Project XL Water Quality Oct 06 - Sept 07 water year

River Hill Coal Company, Kasubic Operation, SMP #17990103

In-Stream Monitoring Point MP2 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	98.0	7.40	9.72	4.86	539
Current median	47	3.66	7.69	3.61	534
Statistically significant?	yes	no	no	no	no

Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	72.63	22.34	4.76	0.56	384
Current median	-4.54	1.4	4.81		978
Statistically significant?	yes	yes	no	no	yes

Project XL Water Quality Oct 05 - Sept 06 water year

River Hill Coal Company, Kasubic Operation, SMP #17990103

In-Stream Monitoring Point MP2 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	98.0	7.40	9.72	4.86	539
Current median	47.5	3.13	6.61	3.18	402
Statistically significant?	yes	yes	no	no	no

Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	72.63	22.34	4.76	0.56	384
Current median	1.3	0.23	0.51	0.04	84
Statistically significant?	yes	yes	yes	yes	yes

Project XL Water Quality Aug 04 - July 05 water year

River Hill Coal Company, Kasubic Operation, SMP #17990103

In-Stream Monitoring Point MP2 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	98	7.355	9.715	4.86	539
Current median	62	5.8	8.805	4.645	472
Statistically significant?	yes	no	no	no	no

Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	72.63	22.34	4.76	0.56	384
Current median	12.58	2.05	0.77	0.06	55
Statistically significant?	yes	yes	yes	yes	yes

Project XL Water Quality Oct 07 - Sept 08 water year
River Hill Coal Company, Mid Penn No. 1 Operation, SMP #17990107

In-Stream Monitoring Point MP 24 Concentration (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	57	7.2	1.68	3.37	158
Current median	46	4.13	2.17	3.93	154
Statistically significant?	no	no	no	no	no

Subchapter F Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	58.8	6.89	0.81	3.63	89.9
Current median	97.9	11.23	3.65	6.36	199.0
Statistically significant?	no	no	no	no	

Subchapter F Point MP 11 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0.457	0.090	0.116	0.017	2.4
Current median	0.027	0.007	0.006	0.000	0.1
Statistically significant?	no	yes	no	no	

Subchapter F Point MP 13 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0.221	0.008	0.026	0.015	1.9
Current median	4.083	0.103	0.280	0.292	13.3
Statistically significant?	no	no	no	no	

Subchapter F Point MP 14 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	4.31	0.114	0.209	0.251	9.5
Current median	15.50	0.315	0.644	1.581	57.3
Statistically significant?	no	no	no		yes

Subchapter F Point MP 30 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0.624	0.013	0.035	0.045	4.1
Current median	0.909	0.013	0.056	0.036	5.1
Statistically significant?	no	no	no	no	

Project XL Water Quality Oct 06 - Sept 07 water year
River Hill Coal Company, Mid Penn No. 1 Operation, SMP #17990107

In-Stream Monitoring Point MP 24 Concentration (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	57	7.2	1.68	3.37	57
Current median	67	6.06	1.58	4.77	172.5
Statistically significant?	no	no	no	no	yes

Subchapter F Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	58.8	6.89	0.81	3.63	
Current median	215.3	22.29	2.37	9.14	445
Statistically significant?	no	no	no	no	

Subchapter F Point MP 11 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0.43	0.09	0.12	0.02	
Current median	0.1	0.05	0.03	0.004	0.61
Statistically significant?	no	no	no	no	

Subchapter F Point MP 13 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0.14	0.0075	0.026	0.015	
Current median	3.93	0.061	0.224	0.357	34.84
Statistically significant?	no	no	no	no	

Subchapter F Point MP 14 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	4.31	0.114	0.208	0.251	
Current median	6.85	0.161	0.37	0.473	19.11
Statistically significant?	no	no	no	no	

Subchapter F Point MP 30 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0.56	0.013	0.035	0.045	
Current median	0.8	0.008	0.08	0.01	4.94
Statistically significant?	no	no	no	no	

Project XL Water Quality Oct 07 - Sept 08 water year
 Ebensburg Power Co., Nanty Glo West Operation, SMP #11020202

In-Stream Monitoring Point NW 14 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	435	38.9	0.75	44.3	
Current median	702	60.9			
Statistically significant?	no	no			

Subchapter F Point NW2 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	102.9	18.2			
Current median	96.6	0.85	0.192	1.99	96.5
Statistically significant?	no	yes			

Subchapter F Point NW4 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	9.9	1.3			
Current median	3.85	0.06			
Statistically significant?	yes	yes			

Subchapter F Point NW5 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	202.6	28.7			
Current median	24.7	2.47			
Statistically significant?	yes	no			

Subchapter F Point NW6 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	55	8.2			
Current median	76	5.92			
Statistically significant?	no	no			

Subchapter F Point NW7 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	242.6	35.8			
Current median	249.2	21.4			
Statistically significant?	no	no			

Subchapter F Point NW7A Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	54.8	10.1			
Current median	22.7	2.44			
Statistically significant?	yes	yes			

Subchapter F Point NW7B Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	35.2	5.1			
Current median	44.2	4.04			
Statistically significant?	no	no			

Subchapter F Point NW7C Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	39.4	6.3			
Current median	29.1	3.27			
Statistically significant?	no	no			
Subchapter F Point NW8 Load (lbs/day)					
	Acidity	Fe	Mn	Al	Sulfate
Baseline median	265.8	49.8			
Current median	239.2	33.5			
Statistically significant?	no	no			

Project XL Water Quality Oct 06 - Sept 07 water year
 Ebsburg Power Co., Nanty Glo West Operation, SMP #11020202

In-Stream Monitoring Point NW 14 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	435	38.9			
Current median	620	72.6			
Statistically significant?	no	no			

Subchapter F Point NW2 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	102.9	18.2			
Current median	64.6	3.7			
Statistically significant?	no	yes			

Subchapter F Point NW4 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	9.9	1.3			
Current median	3.9	0.2			
Statistically significant?	yes	yes			

Subchapter F Point NW5 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	202.6	28.7			
Current median	25.3	2.6			
Statistically significant?	no	yes			

Subchapter F Point NW6 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	55	8.2			
Current median	34.8	2.9			
Statistically significant?	no	yes			

Subchapter F Point NW7 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	242.6	35.8			
Current median	192.3	24.4			
Statistically significant?	no	no			

Subchapter F Point NW7A Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	54.8	10.1			
Current median	402	4.6			
Statistically significant?	no	no			

Subchapter F Point NW7B Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	35.2	5.1			
Current median	27.5	2.9			
Statistically significant?	no	no			

Subchapter F Point NW7C Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	39.4	6.3			
Current median	20	2.4			
Statistically significant?	yes	yes			
Subchapter F Point NW8 Load (lbs/day)					
	Acidity	Fe	Mn	Al	Sulfate
Baseline median	265.8	49.8			
Current median	188.9	35.5			
Statistically significant?	no	no			

Project XL Water Quality Oct 05 - Sept 06 water year
 Ebensburg Power Co., Nanty Glo West Operation, SMP #11020202

In-Stream Monitoring Point NW 14 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	435	38.9			
Current median	840	90	1.06		
Statistically significant?	no	no	no		

Subchapter F Point NW2 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	102.9	18.2			
Current median	67.6	6.5			
Statistically significant?	no	no			

Subchapter F Point NW4 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	9.9	1.3			
Current median	6.8	0.5			
Statistically significant?	no	yes			

Subchapter F Point NW5 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	202.6	28.7			
Current median	178.6	16.2			
Statistically significant?	no	no			

Subchapter F Point NW6 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	55	8.2			
Current median	16.7	1.9			
Statistically significant?	yes	no			

Subchapter F Point NW7 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	242.6	35.8			
Current median	163.9	17.4			
Statistically significant?	yes	yes			

Subchapter F Point NW7A Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	54.8	10.1			
Current median	20.1	2.2			
Statistically significant?	yes	yes			

Subchapter F Point NW7B Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	35.2	5.1			
Current median	5.6	0.5			
Statistically significant?	yes	yes			

Subchapter F Point NW7C Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	39.4	6.3			
Current median	13.4	1.4			
Statistically significant?	yes	yes			
Subchapter F Point NW8 Load (lbs/day)					
	Acidity	Fe	Mn	Al	Sulfate
Baseline median	265.8	49.8			
Current median	81.8	12.8			
Statistically significant?	yes	yes			

Project XL Water Quality Oct 07 - Sept 08 water year

Amerikohl Mining, Inc., Rathmel Operation, SMP #10990101

In-Stream Monitoring Point S4 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0	0.28	0.36	0.42	110
Current median	-31.5	0.33	0.18	0.3	127
Statistically significant?	yes	no	no	no	no

Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	29.2	0.20	0.97	3.21	417
Current median	-38.3	0.05	0.02	0.06	175
Statistically significant?	yes	yes	yes	yes	yes

Project XL Water Quality Oct 06 - Sept 07 water year

Amerikohl Mining, Inc., Rathmel Operation, SMP #10990101

In-Stream Monitoring Point S4 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0	0.22	0.3	0.42	88
Current median	-35.7	0.42	0.37	0.22	
Statistically significant?	yes	no	no	no	

Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	29.2	0.20	0.97	3.21	417
Current median	-58.9	0.06	0.07	0.07	
Statistically significant?	yes	yes	yes	yes	

Project XL Water Quality Oct 05 - Sept 06 water year

Amerikohl Mining, Inc., Rathmel Operation, SMP #10990101

In-Stream Monitoring Point S4 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0	0.22	0.30	0.42	88
Current median	-28.7	0.45	0.41	0.30	147
Statistically significant?	yes	no	no	no	no

Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	29.2	0.20	0.97	3.21	417
Current median	-14.7	0.06	0.06	0.06	78
Statistically significant?	yes	yes	yes	yes	yes

Project XL Water Quality Oct 04 - Sept 05 water year

Amerikohl Mining, Inc., Rathmel Operation, SMP #10990101

In-Stream Monitoring Point S4 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0	0.22	0.3	0.42	88
Current median	-4.3	0.41	0.28	0.29	131
Statistically significant?	no	no	no	no	no

Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	29.2	0.20	0.97	3.21	417
Current median	-7.4	0.16	0.29	0.61	
Statistically significant?	yes	no	yes	yes	

Project XL Water Quality Oct 07 - Sept 08 water year

King Coal Sales, Royal Operation, SMP #17010115

In-Stream Monitoring Point MP 37 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	184	10.3	13.8		
Current median	92.5	3.9	13.4		
Statistically significant?	yes	yes	no		

Subchapter F Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	93	3.3	1.2		
Current median	5.5	0.07	0.27		
Statistically significant?	yes	yes	no		

Subchapter F Hydrologic Unit 2 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0.1	0.003	0.004		
Current median	0.46	0.08	0.03		
Statistically significant?	no	no	no		

Subchapter F Hydrologic Unit 3 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	1.4				
Current median	15.69				
Statistically significant?	yes				

Subchapter F Hydrologic Unit 4 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	9.7				
Current median	0				
Statistically significant?	yes				

Project XL Water Quality Oct 06 - Sept 07 water year

King Coal Sales, Royal Operation, SMP #17010115

In-Stream Monitoring Point MP 37 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	184	10.3	13.8		
Current median	88	4.2	14		
Statistically significant?	yes	yes	no		

Subchapter F Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	93	3.3	1.2		
Current median	7.2	0.02	0.5		
Statistically significant?	yes	yes	no		

Subchapter F Hydrologic Unit 2 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0.1	0.003	0.004		
Current median	0.59	0.01	0.035		
Statistically significant?	no	no	no		

Subchapter F Hydrologic Unit 3 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	1.4				
Current median	6.2				
Statistically significant?	yes				

Subchapter F Hydrologic Unit 4 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	9.7				
Current median	0				
Statistically significant?	yes				

Project XL Water Quality Oct 05 - Sept 06 water year

King Coal Sales, Royal Operation, SMP #17010115

In-Stream Monitoring Point MP 37 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	184	10.3	13.8		
Current median	100	4.12	12.9		
Statistically significant?	yes	no	no		

Subchapter F Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	93	3.3	1.2		
Current median	4.6	0.2	0.28		
Statistically significant?	yes	no	yes		

Subchapter F Hydrologic Unit 2 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0.1	0.003	0.004		
Current median	0.21	0.01	0.01		
Statistically significant?	no	no	no		

Subchapter F Hydrologic Unit 3 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	1.4				
Current median	2.2				
Statistically significant?	no				

Subchapter F Hydrologic Unit 4 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	6.2				
Current median	0				
Statistically significant?	yes				

Project XL Water Quality Oct 04 - Sept 05 water year

King Coal Sales, Royal Operation, SMP #17010115

In-Stream Monitoring Point MP 37 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	184	10.3	13.8		
Current median	100	4.12	12.9		
Statistically significant?	yes	no	no		

Subchapter F Hydrologic Unit 1 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	93	3.3	1.2		
Current median	152.52	3.75	10.23		
Statistically significant?	yes	no	yes		

Subchapter F Hydrologic Unit 2 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	0.1	0.003	0.004		
Current median	0.07	0.005	0.005		
Statistically significant?	no	no	no		

Subchapter F Hydrologic Unit 3 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	1.4				
Current median	11.5				
Statistically significant?	yes				

Subchapter F Hydrologic Unit 4 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	6.2				
Current median	12.99				
Statistically significant?	no				

Project XL Water Quality Oct 07 - Sept 08 water year

Sky Haven Coal, Inc., Surveyor Run Operations, SMP #17990101, 17930117

In-Stream Monitoring Point MP 6 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	34	0.79	5.12		
Current median	15	0.55	3.1		
Statistically significant?	yes	yes	yes		

Subchapter F Point MP-2 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	6.5		4.1		
Current median	14.2		16.3		
Statistically significant?	no		yes		

Subchapter F Point MP-4 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	37		4.1		
Current median	12.7		1.55		
Statistically significant?	yes		no		

Subchapter F Point MP-7 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	321	2	9		
Current median	110	0.31	4.4		
Statistically significant?	yes	yes	yes		

Subchapter F Point MP-9 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	77		1		
Current median	6.8		0.44		
Statistically significant?	no		no		

Subchapter F Point MP-17 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	6				
Current median	0.14				
Statistically significant?	yes				

Subchapter F Point MP-30 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	4				
Current median	-70				
Statistically significant?	yes				

Project XL Water Quality Oct 06 - Sept 07 water year

Sky Haven Coal, Inc., Surveyor Run Operations, SMP #17990101, 17930117

In-Stream Monitoring Point MP 6 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	34	0.79	5.12		
Current median	14.5	0.52	3.9		
Statistically significant?	yes	yes	yes		

Subchapter F Point MP-2 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	6.5		4.1		
Current median	4.9		16.7		
Statistically significant?	no		yes		

Subchapter F Point MP-4 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	37		4.1		
Current median	14.3		2.1		
Statistically significant?	yes		no		

Subchapter F Point MP-7 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	321	2	9		
Current median	100	0.4	5		
Statistically significant?	yes	yes	yes		

Subchapter F Point MP-9 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	77		1		
Current median	27		0.8		
Statistically significant?	no		no		

Subchapter F Point MP-17 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	6				
Current median	0.9				
Statistically significant?	no				

Subchapter F Point MP-30 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	4				
Current median	-144				
Statistically significant?	yes				

Project XL Water Quality Oct 05 - Sept 06 water year

Sky Haven Coal, Inc., Surveyor Run Operations, SMP #17990101, 17930117

In-Stream Monitoring Point MP 6 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	34	0.79	5.12		
Current median	7.5	0.65	4.05		
Statistically significant?	yes	no	no		

Subchapter F Point MP-2 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	6.5		4.1		
Current median	21		17.8		
Statistically significant?	no		no		

Subchapter F Point MP-4 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	37		4.1		
Current median	13.1		1.97		
Statistically significant?	yes		yes		

Subchapter F Point MP-7 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	321	2	9		
Current median	88	0.22	3.3		
Statistically significant?	yes	yes	yes		

Subchapter F Point MP-9 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	77		1		
Current median	26.5		0.9		
Statistically significant?	yes		no		

Subchapter F Point MP-17 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	6				
Current median	0.91				
Statistically significant?	no				

Subchapter F Point MP-30 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	4				
Current median	1.2				
Statistically significant?	no				

Project XL Water Quality Oct 04 - Sept 05 water year

Sky Haven Coal, Inc., Surveyor Run Operations, SMP #17990101, 17930117

In-Stream Monitoring Point MP 6 Conc. (mg/l)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	34	0.79	5.12		
Current median	10	0.47	3.56		
Statistically significant?	yes	no	no		

Subchapter F Point MP-2 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	6.5		4.1		
Current median	-53.2		10.9		
Statistically significant?	no		no		

Subchapter F Point MP-4 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	37		4.1		
Current median	28.36		3.62		
Statistically significant?	no		no		

Subchapter F Point MP-7 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	321	2	9		
Current median	155	0.72	5.418		
Statistically significant?	yes	no	no		

Subchapter F Point MP-9 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	77		1		
Current median	108		2.687		
Statistically significant?	no		no		

Subchapter F Point MP-17 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	6				
Current median	-0.11				
Statistically significant?	no				

Subchapter F Point MP-30 Load (lbs/day)

	Acidity	Fe	Mn	Al	Sulfate
Baseline median	4				
Current median	5.82				
Statistically significant?	no				

Project XL Water Quality Oct 07 - Sept 08 water year
 River Hill Coal Company Wheatfield Operation SMP #32000108

In-Stream Monitoring Point WF13 Conc. (mg/l)					
	Acidity	Fe	Mn	Al	Sulfate
Baseline median	56	2.83	1.45	5.1	
Current median	71	1.84			
Statistically significant?	no	no			
Hydrologic Unit 1 Load (lbs/day)					
	Acidity	Fe	Mn	Al	Sulfate
Baseline median					
Current median					
Statistically significant?					