

## PRIORITIES

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Abatement area priority rankings were formulated after a consideration of several important factors. Location within the watersheds, specific streams affected, stream miles degraded, amount of acid abated, effects of abatement on receiving streams, cost, and cost effectiveness were all important in the priority determinations. Aesthetic factors such as public visibility were not considered as justification for abatement work or for priority ranking. The factors were analyzed and weighted according to the conditions evident within each individual abatement area. An explanation of the priority ranking follows.

Abatement Areas B, C, Y and E were assigned top priority based on their locations, the specific streams they affect, and the stream miles they degrade. All four are isolated hot modules located in portions of watersheds which are largely cold in nature. Areas B, C, and E are located in the Clearfield Creek Watershed's relatively high quality southern regime. They are the major polluters of the creek upstream from the Shoff Mine, and any abatement in these areas will have the most far-reaching effects in terms of stream miles improved. Abatement Area Y is the only large pollution source along Black Moshannon Creek. The bulk of the Black Moshannon Watershed is located outside of the coal measures, thus the stream has relatively good quality until it reaches the abatement area.

Elimination of this acid source would return the entire length of Black Moshannon Creek to its former good quality.

Abatement areas assigned priority rankings five through ten had similar relative watershed locations. The major factors utilized in this priority range were the amounts of acid that could be abated and the effects of abatement on the streams involved and the West Branch of the Susquehanna River. Abatement Area S, with the largest predicted acid load abatement of the study, was ranked fifth, followed by Abatement Areas J, L, R, F, and K.

The remaining abatement areas for which costs were presented were ranked eleven to twenty-one on the priority list. Location within the watersheds was not a critical distinguishing factor in ranking these areas. Primary consideration here was given to the specific streams involved, predicted acid load abatement, and cost effectiveness. The main goal was to rank the projects which would do the most good in the particular stream involved with the most reasonable cost effectiveness.

The four projects in which further study was recommended, Abatement Areas I, A, T and O, were ranked separately because no costs were presented. The first three of these are extremely important, and should be given high priority as feasibility studies. Abatement Area I involves the Middle Penn Mine complex. If the suggested abatement here

proves feasible, this will represent the largest single watershed improvement stemming from this study. With the Middle Penn Mine acid discharges eliminated, Clearfield Creek's AMD problem will be greatly alleviated, setting the stage for a complete clean up of Clearfield Creek.

If the recommended deep mine sealing in Abatement Area A, along Trapp Run, proves feasible, it will be possible to greatly improve the water quality of Clearfield Creek itself throughout the southern regime, from Cresson to Muddy Run.

Abatement Area T is the source of over 90,000 adjusted lbs/day acid. Any abatement work resulting from the general recommendations made for this area is bound to be reflected in a decrease in the acid load of Moshannon Creek and, as a result, the West Branch of the Susquehanna River.

Finally, any decrease in AMD production in Abatement Area O, will greatly improve the quality of Morgan Run below that area.

# ABATEMENT AREA

PRIORITY	ABATEMENT AREA	STRIP MINE NUMBERS	ABATEMENT AREA DESCRIPTION
1	B	1,2,3,4,5,6,7,8,9	Brubaker Run-Little Laurel Run strip mines
2	C	10,11,12,13,14,15	Powell Run strip mines
3	Y	74,75,76,77	Black Moshannon Creek strip mines
4	E	16	Swank's Mine
5	S	None	Hill south of Osceola Mills, formerly Quick Start No. 1
6	J	28,29,30,31	Mascot area strip mines and bony, Upper Morgan Run
7	L	35,36	Lost Run strip mine, formerly Quick Start No. 2
8	R	51,52,53	Bear Run-Mountain Branch strip mines
9	F	17,18,19,20,21	Shoff Mine, formerly Quick Start No. 3
10	K	32,33,34	Small strips north of Upper Morgan Run

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# RECOMMENDATIONS

ESTIMATED CONSTRUCTION COST	ESTIMATED ACID ABATED lbs. / day	OVERALL COST EFFECTIVENESS (\$ per lb. / day acid abated)	PRIORITY RANKING CRITERIA
\$1,235,000	2,620	\$471	Location in Clearfield Creek's southern regime, far reaching effects of recommended abatement, good cost effectiveness
1,050,000	2,240	468	Location in Clearfield Creek's southern regime, far reaching effects of abatement, good cost effectiveness
1,620,000	5,100	318	Only pollution source to Black Moshannon Creek, major stream quality improvement from recommended abatement, good cost effectiveness
293,000	2,700	109	Location in Clearfield Creek's southern regime, complete abatement, low cost effectiveness
4,792,000	24,000	200	Large acid source to Moshannon Creek, high acid load abatement, low cost effectiveness
273,000	2,060	132	Major acid source to Upper Morgan Run, large acid load abatement, excellent cost effectiveness
710,500	9,360	75	Major acid source to Lost Run, high percentage abatement, low cost effectiveness
1,270,000	10,000	127	Major acid source to headwaters of Moshannon Creek, large acid load abatement, low cost effectiveness
516,000	4,200	122	Large acid source, high acid load abatement, low cost effectiveness
156,000	2,000	78	Major acid sources to North Branch Upper Morgan Run, large acid load abatement, excellent cost effectiveness

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11	G	22,23,24,25	Pine Run strip and deep mines northwest of Madera
12	Q	45,46,47,48 49,50	Roaring Run strip mines
13	V	56,57,58,59 60,61,62,63,64	Big Run strip mines
14	H	26	Japling Run strip mine
15	M	37,38	Strip mines north of Lost Run
16	N	39,40,41	Potts Run strip mines
17	W	65,66,67,68 69,70	Little Laurel-Albert Run strip mines
18	U	54,55	Coal Run headwaters strip mines
19	D	None	Coalport bony area
20	P	44	Krebs-Long Run strip mine
21	X	71,72,73	Hawk Run, Sulphur Run, Grassflat Run bony areas

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# RECOMMENDATIONS

ESTIMATED CONSTRUCTION COST	ESTIMATED ACID ABATED lbs. / day	OVERALL COST EFFECTIVENESS (\$ per lb. / day acid abated)	PRIORITY RANKING CRITERIA
\$ 161,000	582	\$276	Only acid sources to Pine Run, low cost effectiveness
972,000	3,580	270	Major acid sources to Roaring Run, good cost effectiveness
1,045,000	1,967	530	Large acid load abated, reasonable cost effectiveness
141,300	300	470	Prevention of surface water infiltration into underlying deep mines
226,000	700	323	Important when work in Abatement Area L is completed, reasonable cost effectiveness
532,000	1,100	483	Contains 2 of the 3 major acid sources to Potts Run, relatively high quality stream, reasonable cost effectiveness
1,004,000	3,105	323	Can essentially restore Little Laurel and Albert Runs to good quality, reasonable cost effectiveness
243,000	680	357	Important acid source, reasonable cost effectiveness
15,000	100	150	Acid source to Clearfield Creek's southern regime, reasonable cost effectiveness
694,000	1,000	694	Major acid source to Krebs and Long Runs
375,000  Total = \$17,323,800	1,360  Total = 79,400	276  Average = \$216	Major acid sluggers



# ABATEMENT

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PRIORITY	ABATEMENT AREA	STRIP MINE NUMBERS	ABATEMENT AREA DESCRIPTION
	I	27	Mid Penn No. 4 Mine
	A	None	Trapp Run deep mine complex
	T	None	Moshannon Creek Watershed active mining permit areas
	O	42,43	Passmore Mine, Morgan Run headwaters

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# RECOMMENDATIONS

ESTIMATED CONSTRUCTION COST	ESTIMATED ACID ABATED lbs. / day	OVERALL COST EFFECTIVENESS (\$ per lb. / day acid abated)	PRIORITY RANKING CRITERIA
Unknown	38,200	Unknown	High priority feasibility study, great improvement to Clearfield Creek's northern regime
Unknown	5,800	Unknown	High priority feasibility study could completely abate acid load, great improvement to Clearfield Creek's southern regime
Unknown	32,000+	Unknown	High priority general recommendation to facilitate future abatement work
\$ 406,000	590	\$688	Major source of acid to Morgan Run, located near headwaters. Cost and abatement values shown represent only small portion of recommendations