XII. CONCLUSIONS

A. Pollution Sources

The bulk of mine drainage pollution in the Two Lick Creek Drainage Basin is concentrated in two general areas. They are in the vicinity of Clymer in the north and Homer city in the south wher most of the deep mining has historically occurred.

The Clymer area accounts for more that 57% of the sources and contrubtes approximately 55% of the total acide load into Two Lick Creek. Approximately 11, 108 acres of abandoned deep mines, 83 acres of coal refuse piles and 906 acres of unreclaimed strip mines occur in this area.

The Homer City area accounts for more than 34% of the sources and contributes approximately 40% of the total acid load into Two Lick Cree. Approximately 24,408 acres of abandoned deep mines, 64 acres of coal refuse piles and 66 acres of unreclaimed strip mines occur in the area.

There are approximately 120 sources of polltuion in the Basin. Of these sources, 16 produce an average of over 1,000 pounds of acid load per day. Another 7 sources produce an average of over 500 pounds of acid load per day. All these sources are either abandoned deep mines or related refuse piles.

Abandoned deep mines and coal refuse piles account for approximately 95% of the total acid load in the Basin.

Unreclaimed strip mines per se account for approximately 5% of the total acid load. Most of this pollution is difficult to measure due to quick runoff and gradual seepage over large areas of land.

B. Priorities

It is concluded that the abatement of mine drainage pollution within the Two Lick Creek drainage basin would best be accompished by individual watersheds.

Priority would bes be given to those watersheds in the Clymer and Heilwood areas and upstream from two large impoundments, the Two Lick Creek and Yellow Creek Dams located near the geographical center of the Basin. These two bodies of water are to be developed for recreational and industrial purposes and are very important factors in the future economickl growth of the area.

It is also concluded that the abatement of pollution in the upstream watersheds will have a beneficial buffering affect on the waters downstream from the impoundment. Abatement of downstream watersheds are therefore given a lower priority even though some of these watersheds contain major individual sources of pollution.

XIV. COST ANALYSIS

A. Summary of Abatement Costs

Table 19 on the following page presents a summary by individual watersheds of the costs and associated benefication from the abatement of mine drainage sources recommended in Plans A and B.

Table 20 shows the projected costs involved in the proposed post construction studies for each individual watershed.

Detailed costs for the specific recommended treatments involved in each plan are described in the Abatement Recommendations sections of the report that deal with the individual watersheds.

All indicated abatement costs reflect and include engineering costs for design supervision of construction and inspection.

Table 19

Benefication - Recommended Plans

Individual Watersheds

Plan	Sources Abated	Benefication Pollution Reduction Acid Lbs./Day - % of Total		Benefication Pollution Reduction Iron Lbs./Day - % of Total		Benefication Pollution Reduction Sulfate Lbs./Day - % of Total		Total Cost
Buck Run Watershed								
A	1 - 7	5,690 -	75%	2,119 -	75%	9,411 -	73%	$ 520,163
B	1 - 4	5,299 -	70%	2,041 -	72%	7,524 -	59%	200,998
North Branch Watershed								
A	1 - 9	752 -	39%	307 -	66%	4,356 -	29%	$ 222,354
B	1 - 4	474 -	25%	295 -	63%	2,749 -	18%	63,030
Upper Two Lick Creek Watershed								
A	I - 12	9,912 -	71%	3,356 -	82%	38,630 -	74%	$1,617,802
B	1 - 8	9.406 -	68%	3,509 -	81%	35,248 -	67%	1,210,111
per Yellow Creek Watershed								
A	1 - 2	17 -	1%	1 -	3%	133 -	1%	$ 6,765
B	1	13 -	1%	1 -	3%	58 -	.6%	4,620
Dixon Run Watershed								
A	1 - 7	654 -	55%	113 -	64%	4,568 -	41%	$ 128,783
B	1 - 6	642 -	54%	110 -	63%	4,396 -	40%	121,275
Penn Run Watershed								
A	1 - 3	606 -	18%	154 -	15%	4,307 -	19%	$ 70,282
B	1 - 2	600 -	18%	154 -	15%	4,200 -	18%	66,432

Table 19 Continued

Benefication - Recommended Plans

Individual Watersheds

Plan	Sources Abated	Benefication Pollution Reduction Acid Lbs./Day - % of Total		Benefication Pollution Reduction Iron Lbs./Day - % of Total		Benefication Pollution Reduction Sulfate Lbs./Day - % of Total		Total Cost
	Lower Yellow Creek Watershed							
A	1 - 11	36,672 -	95%	7,152 -	97%	102,624 -	95%	$6,360,397
B	1 - 9	35,622 -	93%	7,047 -	96%	99,474 -	92%	5,835,774
	Tearing Run							
A	1 - 8	2,054 -	79%	515 -	84%	8,022 -	70%	$ 358,500
B	1 - 4	1,725 -	66%	503 -	81%	5,589 -	49~%	157,722
	Lower Two Lick Creek Watershed							
A	1 - 5	6,667 -	96%	3,592 -	99%	22,703 -	93%	$1,086,518
B	1 - 3	6,388 -	92%	3,566 -	98%	20,969 -	86%	953,638
	Cherry, Run							
A	1	529 -	100%	352 -	99%	5,023 -	93%	$ 76,058
Total Plan A		63,553		17,661		199,777		$10,447,622
Total Plan B		60,169		17,226		180,207		$ 8,613,600

Table 20

Cost Analysis

Post Construction Studies

(Cost Per Individual Watershed)

Two Year Period

Service	Cost
Sampling Station Installation	$ 600.00
Sample Collection	600.00
Sample Analysis	700.00
Construction Inspection	1,200.00
Reports and Administration	600.00
Total	$3,700.00