Conclusions

CONCLUSIONS

A. BASIN DIVISION

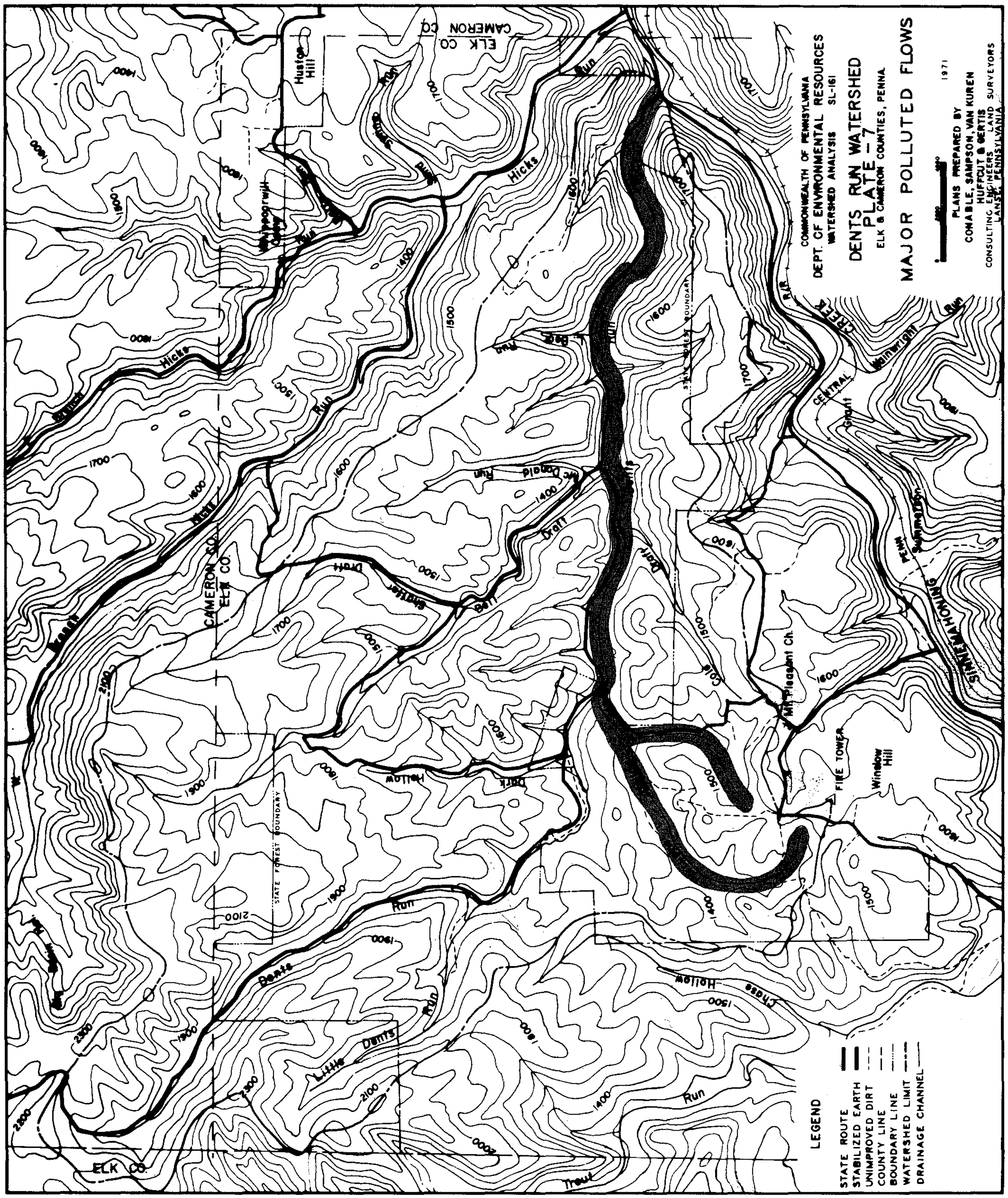
The Dents Run Watershed area has been divided into nine subregional "areas or basins as described before and shown on Plate 5. Compiled data emphatically indicates the Porcupine Hollow sub-basin as being the primary contributor to the pollution in Dents Run. The average daily acid load from Porcupine Hollow, as measured at Station 21, was 3,676 pounds, 94% of the total average daily acid load of 3,898 pounds contributed to Dents Run by tributary streams. The balance was contributed by Cole Draft and four small tributaries to Dents Run from the ridge separating Dark Hollow and Bell Draft, and measured at Stations 19, 19A, 26, 27 and 28. The remaining sub-basins were generally alkaline. The seeming incongruity that the average daily acid load of Porcupine Hollow was 109% of the average daily acid load at the mouth of Dents Run, and that-of Cole Draft and the larger of the two small tributaries listed above was

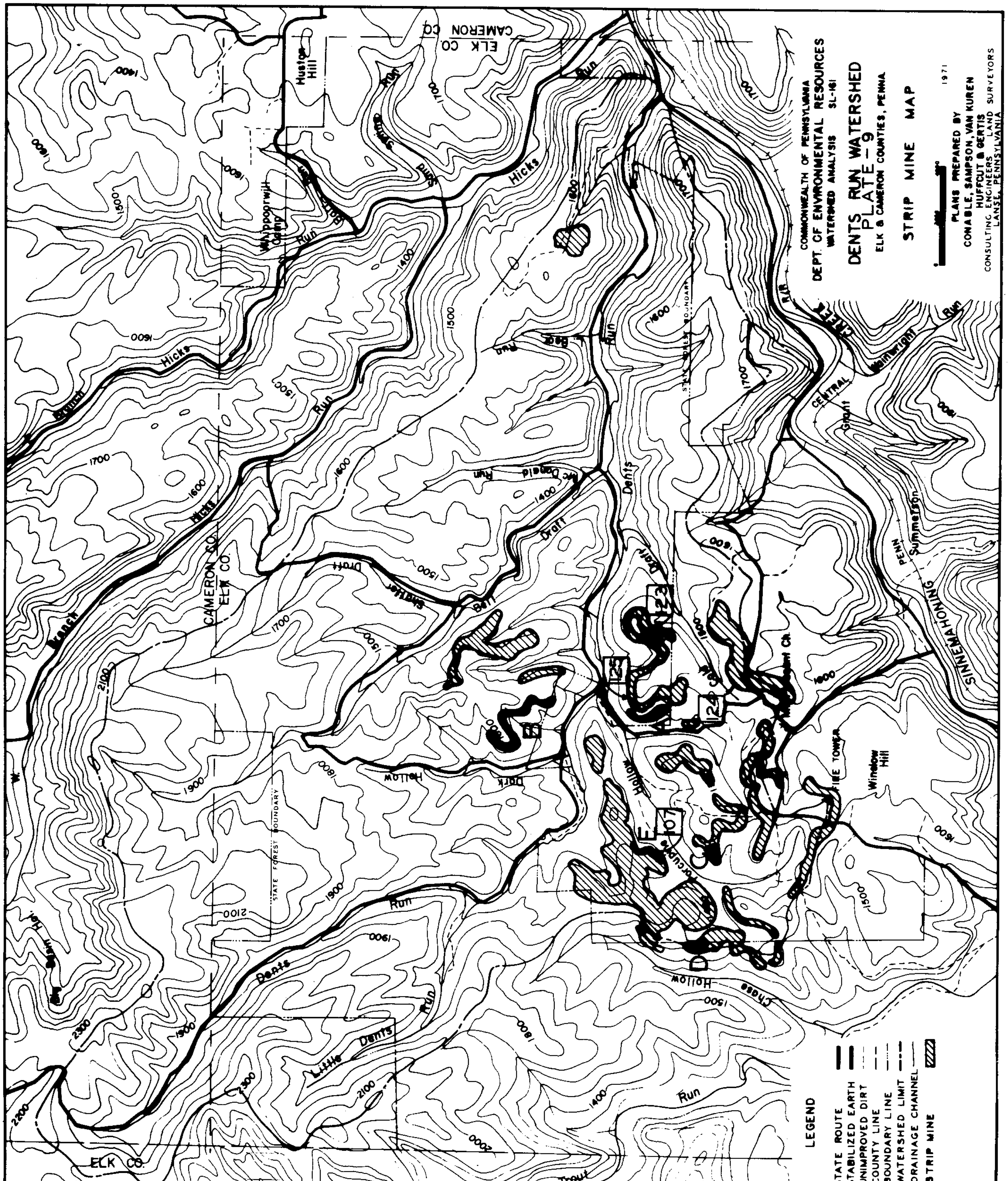
6% of the average daily acid load at the mouth of Dents Run or a total average daily acid load from these contributing sub-basins of 115% of the average daily acid load in Dents Run measured at the mouth of Dents Run at Station 1, is due to the neutralizing effect of the alkalinity of other sub-basins and tributaries. Data Sheets in Appendix E reveal alkaline flows from Station 2, 3, 4, 5, 6, and 7, tributaries entering Dents Run downstream from Cole Draft and Porcupine Hollow. The flow in Dents Run upstream from Porcupine Hollow measured at Sampling Station 18A is alkaline, as are other upstream tributaries-such as Dark Hollow and Little Dents Run. It is evident that neutralization is occurring accounting for the difference between the daily acid load contributed to Dents Run and that measured at the mouth of=Dents Run.

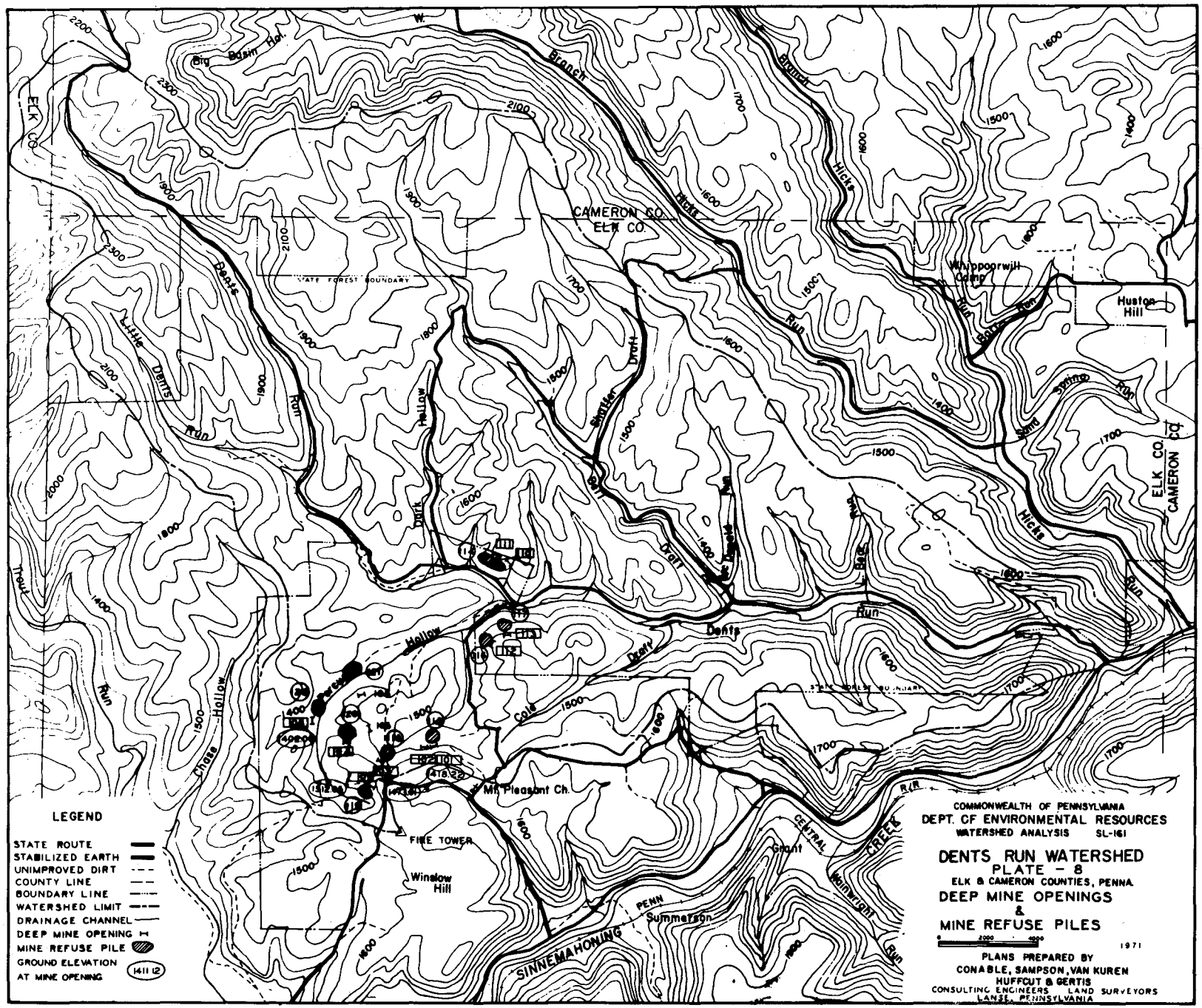
We will express percentages of acid loads as based on. the measured acid load from a given source compared to the total average daily acid load contributed to Dents Run by its tributaries of 3,898 pounds as measured at Stations 19, 19A, 21, 26, 27 and 28. This generates a more realistic evaluation than using the acid load as-measured at the mouth of Dents Run after neutralizing action of other contributing sub-basins has taken place.

B. POLLUTION SOURCES:

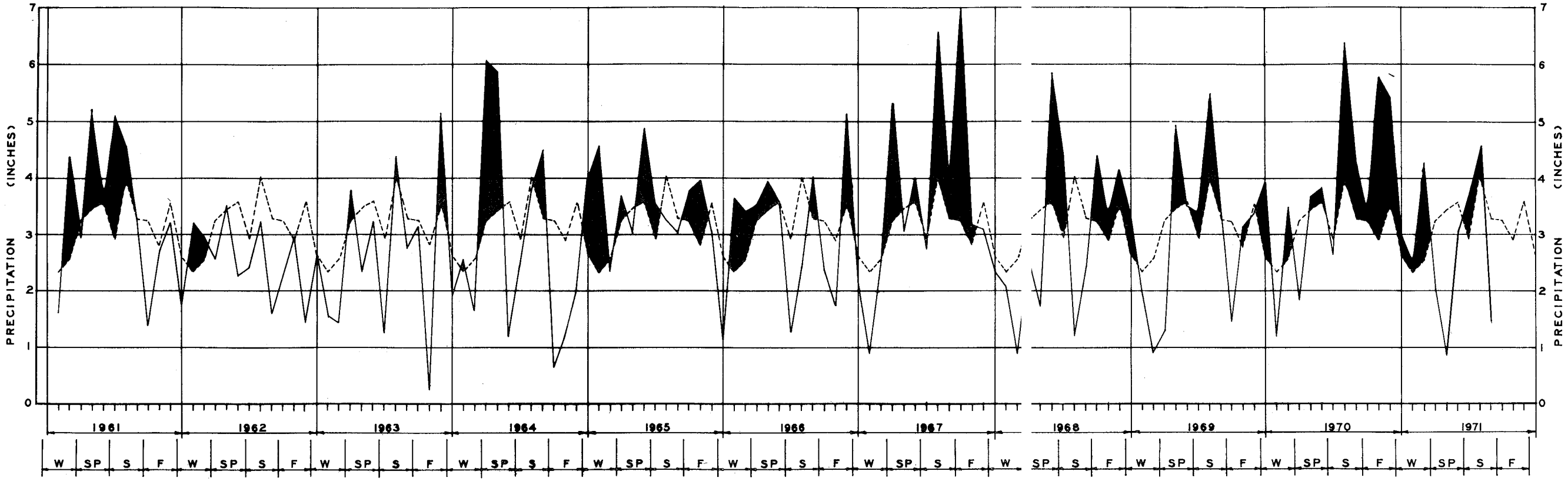
There are four major sources and approximately twenty-one minor sources contributing to the pollution of Dents Run with all of the major sources located in Porcupine Hollow sub-basin. Three of the four major sources, 103, 108 and 109, are abandoned deep mines, and one, 107, is an active strip mine located on private property. Sixteen of the twenty-one minor sources, 101, 102, 104, 105, 106, 112, 113, 115, 116, 117, 118, 119, 120, 121, 122, and-125 are also located in Porcupine Hollow sub-basin. Three, 110, 111 and 114, are located in Dents Run basin between the confluence of Dark Hollow with Dents Run and the confluence of Porcupine Hollow with Dents Run and two, 123 and 124, are located in Cole Draft sub-basin. Of the minor sources nine, 101, 102, 104, 105, 106, 110, 111, 112 and 113, are abandoned deep mines and of the remaining twelve, nine, 114, 115, 116, 117, 118, 119, 120, 121 and 122 are mine refuse piles, three, 123, 124 and 125, are abandoned strip mines. Major pollution flows are shown on Plate 7 and the locations of pollution sources are shown on Plates 8 and 9.


COMMONWEALTH OF PENNSYLVANIA
DEPT. OF ENVIRONMENTAL RESOURCES
WATERSHED ANALYSIS SL-161
DENTS RUN WATERSHED
PLATE - 7
ELK & CAMERON COUNTIES, PENNA.
MAJOR POLLUTED FLOWS
1971
PLANS PREPARED BY
CONABLE, SAMPSON, VAN KUREN
HUFFCUT & GERTIS
CONSULTING ENGINEERS LAND SURVEYORS
LEGEND
STATE ROUTE
STABILIZED EARTH
UNIMPROVED DIRT
COUNTY LINE
BOUNDARY LINE
WATERSHED LIMIT
DRAINAGE CHANNEL
CAMERON CO.
ELK CO.
Hicks Run
Dents Run
Little Dents Run
Dark Hollow
Chase Hollow
Trout Run
Winslow Hill
FIRE TOWER
Mt. Pleasant Ch.
Huston Hill
SINNEMAHONING
PENN CENTRAL R/R
Wainwright Run
STATE FOREST BOUNDARY


COMMONWEALTH OF PENNSYLVANIA
DEPT. OF ENVIRONMENTAL RESOURCES
WATERSHED ANALYSIS SL-161
DENTS RUN WATERSHED
PLATE - 9
ELK & CAMERON COUNTIES, PENNA
STRIP MINE MAP
PLANS PREPARED BY
CONABLE, SAMPSON, VAN KUREN
HUFFCUT & GERTIS
CONSULTING ENGINEERS LAND SURVEYORS
LANSE, PENNSYLVANIA
1971
LEGEND
STATE ROUTE
STABILIZED EARTH
UNIMPROVED DIRT
COUNTY LINE
BOUNDARY LINE
WATERSHED LIMIT
DRAINAGE CHANNEL
STRIP MINE
CAMERON CO.
ELK CO.
Hicks Run
Dents Run
Little Dents Run
Trout Run
Chase Hollow
Dark Hollow
Porcupine Hollow
Window Hill
Huston Hill
Whippoorwill Camp
FIRE TOWER
SINNEMAHONING
PENN CENTRAL
Summerson
Wainwright Run
STATE FOREST BOUNDARY


LEGEND
STATE ROUTE
STABILIZED EARTH
UNIMPROVED DIRT
COUNTY LINE
BOUNDARY LINE
WATERSHED LIMIT
DRAINAGE CHANNEL
DEEP MINE OPENING
MINE REFUSE PILE
GROUND ELEVATION AT MINE OPENING
1411.12
COMMONWEALTH OF PENNSYLVANIA
DEPT. OF ENVIRONMENTAL RESOURCES
WATERSHED ANALYSIS SL-161
DENTS RUN WATERSHED
PLATE - 8
ELK & CAMERON COUNTIES, PENNA.
DEEP MINE OPENINGS
&
MINE REFUSE PILES
1971
PLANS PREPARED BY
CONABLE, SAMPSON, VAN KUREN
HUFFCUT & GERTIS
CONSULTING ENGINEERS LAND SURVEYORS
LANSE, PENNSYLVANIA
CAMERON CO.
ELK CO.
STATE FOREST BOUNDARY
Big Basin Hol.
W. Branch
Hicks Run
Whippoorwill Camp
Huston Hill
Little Dents Run
Dents Run
Chase Hollow
Trout Run
Cole Deep
Mt. Pleasant Ch.
FIRE TOWER
Winslow Hill
Summerson
SINNEMAHONING
PENN
CENTRAL
Grant
Wainwright Run
R.R.

C-4



DATA FROM U.S. DEPT. OF COMMERCE

LEGEND

AVERAGE PRECIPITATION ----------

RECORDED PRECIPITATION ——————

DARK AREAS ARE ABOVE AVERAGE PRECIPITATION

COMMONWEALTH OF PENNSYLVANIA
DEPT. OF ENVIRONMENTAL RESOURCES
WATERSHED ANALYSIS SL-161

DENTS RUN WATERSHED

ELK & CAMERON COUNTIES, PENNA.

FIGURE - 3

1971

PLANS PREPARED BY
CONABLE, SAMPSON, VAN KUREN
HUFFCUT & GERTIS
CONSULTING ENGINEERS LAND SURVEYORS
LANSE, PENNSYLVANIA

C. SURFACE DRAINAGE:

During the months of June, July and August of 1971 and for the first half of the month of September, 1971, precipitation in the basin was below average as indicated in Figure 3, and stream flows were, therefore, below normal. Normal surface drainage in the area has been disrupted by strip mining, particularly in the Porcupine Hollow and Cole Draft area and to a certain extent in the main Dents Run basin between Dark Hollow and Bell Draft.

No surface water was observed entering deep mine shafts, only being discharged there from. All deep mines which are discharging a heavily pollutant effluent are located in immediate proximity to strip mines. It is our conclusion that the major portion of the flows emitting from these deep mines is water entering the deep mines as a result of strip mining activity where the strip mine areas have not been properly recontoured.

Deep mine refuse piles affect the pollution contribution to the streams during rainfall periods. Removal of these refuse piles would reduce pollution during rainfall and, by using the piles as borrow material for filling, strip mine areas can accomplish a second purpose.

Surface drainage was significant during periods of rapid surface runoff due to sudden rainstorms. Such runoff did not have a diluting effect on the acidity of Dents Run as measured in Mg/L. This value remained constant for all practical purposes indicating

that runoff from strip mine areas was highly acid in content

for reasons stated previously in the geological report. Also, in some of the strip mine areas surface water ponds, eventually percolating into the soil and becoming sub-surface water.

In our opinion, slugging was not a significant factor in stream pollution. The acidity of the stream as expressed in mg/l remained essentially constant regardless of stream flow. Acid load expressed in pounds per day did vary directly with stream flow but in direct proportion to the measured flow.

D. SUB-SURFACE DRAINAGE:

The geologic structure controls sub-surface drainage as previously described. A comparison of the strip mine map (Plate 9) with the contour map of the Clarion Coal (Type A) (Plate 11-A) shows clearly that the vast majority of the strip mine workings are of this coal seam. This is the major coal seam shown on the Generalized Stratigraphic Section, Page 1-8, and the Geologic Cross-Section (Figure 2) and separates the Pottsville Formation from the Allegheny Formation. Deep mine openings clearly indicate that deep mine activity was conducted in this layer also. Sub-surface waters following this coal seam collect at Porcupine Hollow either as a result of the geologic structure or due to being discharged from the openings from the abandoned deep mines. If the discharges from deep mines 101 and 102, 103, 108 and 109 could be completely eliminated, approximately 40% of the average daily acid load in Porcupine Hollow, including Porcupine Run, as measured at Stations 23 and 24 would be removed, or nearly 51% of the average daily acid load as measured at the mouth of Dents Run. However, attempting to establish permanent seals of these

deep mine openings would not appear to be an effective solution. Mine opening elevations as determined in the field were 1,418 for openings 101 and 102, 1,473 for 103, 1,402 for 108 and 1,512 for 109. Ground elevations, again determined in the field, for the highest point where saturated ground and possible ponding could occur for these deep mines were 1,672 for 101 and 102 and 103, 1,634 for 108 and 1,624 for 109. Therefore the potential heads for these mine openings were 254 feet for 101 and 102, 199 feet for 103, 232 feet for 108 and 112 feet for 109. Since sub-surface water is obviously following the down-dip of the coal seam, sealing of the mine openings would cause a build-up of head behind the seals. Without construction of very extensive water-tight barriers, the imposed heads would eventually cause ground waters to erupt elsewhere, possibly in a more undesirable form. Extensive drilling, information would be required to design the necessary barriers and the costs of drilling and barrier construction would be out of proportion with any predictable permanent results. Elimination or reduction of sub-surface flows by other means, namely recontouring and revegetation of strip mined areas to a more natural state would seem to present the optimum solution for abatement.

E. POLLUTION VS. FLOW

Normally it would be expected that an increase in stream flow due to runoff of surface waters would result in a decrease in acidity due to the diluting effect of the surface waters. Such was not the case. There did appear to be a tendency towards lower acidity values in the case of deep mine discharges with increased flows but the measured acidity in Porcupine Hollow,

in particular, remained constant regardless of the amount of flow and, in some instances, even increased. The conclusion we draw from this is that the runoff of surface waters from active strip mines and from unreclaimed or partially reclaimed strip mine workings coupled with runoff from mine refuse piles contributes sufficient acidity to nullify any diluting effects. Since acidity in mg/l remained constant regardless of flow, the acid load in pounds per day varied directly with stream flow.

F. CONTRIBUTIONS FROM POLLUTION SOURCES:

Of the identifiable pollution sources where it was possible to obtain measurements of flow and acid load, four sources, 103, 107, 108 and 109, were classified as major sources as previously defined and the combined discharges of Sources 101 and 102 also constituted a major source. These sources contribute 2,135 pounds per day or 54.8% of the total average daily acid load of 3,898 pounds contributed to Dents Run by tributary streams. The remainder of the pollution enters Dents Run as sub-surface drainage or surface runoff in such a manner as to preclude pin-pointing the origination and measuring the quantity. Based on the various values obtained by measurement during dry weather periods, heavy rainfall periods and generally normal periods which provide the maximum, minimum and average daily acid loads respectively, other measurable minor sources, namely 110, 111, 112, and 113, account for 1.4%. of the total average daily acid load contribution. We estimate that 38% is from surface runoff over strip mined area and the 5.8% balance of the total average daily acid load contribution is from sub-surface drainage due to the geologic structure

as discussed previously. However, during heavy rainstorms and the sudden runoff resulting there from, the contributions vary considerably. During these periods, Sources 101 and 102, 103, 107, 108 and 109 contribute 29.2% of the maximum daily acid load, Sources 110, 111, 112, and 113 provide 1.1%, sub-surface drainage decreases slightly to an estimated 5% and we estimate that surface drainage accounts for the balance of 64.5%.

G. DIVERSION OF SURFACE RUNOFF:

Since the major cause of pollution in Dents Run is the discharge from the aforementioned deep mine openings, two obvious solutions immediately present themselves. The first would be a complete dessation of the discharges from these mine openings which could be accomplished only by permanent seals of the mines and, as has been discussed previously in this report, appears to be impractical if not impossible. The second is a major reduction of the amount of surface water which enters the deep mines and is subsequently discharged. It would appear that this could be accomplished by recontouring and revegetation so as to obtain either a faster runoff of surface waters or a greater utilization of surface waters that are absorbed into the soil through the requirements for water of vegetation. Recontouring would include construction of diversion ditches in some areas to facilitate runoff and surface drainage and to eliminate or relieve ponding or accumulation of surface waters which occurs now due to the existing terrain. Recontouring, including diversion ditches, would have a two-fold effect. The increased rate of surface runoff will reduce the discharge from mine openings thereby reducing the

acid load in Porcupine Hollow and thence Dents Run. Secondly, a dilution during periods of heavy runoff will occur as a result of the greater runoff of better quality water achieved from regrading and revegetation. By directing a greater portion of rainfall into streams prior to absorption into the ground, subsequent discharge from the deep mine openings will be reduced. The evidence indicates that during periods of rainfall, although the total flow in the stream increases, the increase in discharges from deep mine openings is not proportional and yet the acid load increases and the acidity of the stream as expressed in milligrams per liter. of parts per million remains constant. As has been mentioned previously, we attribute this to runoff during these periods from mine refuse piles and from unreclaimed strip mine workings. We believe that the elimination of the refuse piles and recontouring and revegetation of the strip mine workings will materially reduce the acid load in pounds per, day in Dents Run during rainfall periods.

H. TREATMENT OF DISCHARGES:

Treatment of the discharges from abandoned deep mine openings was considered, but the high iron content of these discharges renders treatment impractical, if not impossible, and certainly uneconomical. We also considered storing of discharges from the deep mines in a large retention pond or basin with subsequent discharge into the stream taking place during rainfall periods in order to take advantage of the diluting effects of surface runoff at these times. However, this also presents a serious impracticality in the operation of such a system in that the

release of the impounded waters would seem to have to be controlled manually. Also, until such time as the surface runoff into the streams can be improved as to water quality, we would create a severe slugging situation during rainfall periods' while having a relatively unpolluted stream during dry weather flows.

RECOMMENDATIONS

A. POLLUTION SOURCES:

1. Major Sources:

a. The four major sources of pollution are the discharges from Deep Mine Openings 103, 108 and 109 and the flow into Porcupine Hollow of impounded water at Strip Mine Area 107. In addition, the combined discharges from Deep Mine Openings 101 and 102 constitute a major source. Maximum flows from these sources range from 22,000 gallons per day to 82,000 gallons per day and a total of 261,000 gallons per day and occurred on the same date as the maximum recorded flow in Dents Run. The flow from these sources on this day was only 1.4% of the total flow in Dents Run, yet the acid load contributed on that day from these sources was 51.9% of the total. Average daily flow from these sources is 2.4% of the total average daily flow in Dents Run and average daily acid load from these sources is 63% of the total average daily acid load in Dents Run.

b. Elevation differences between the mouths of the mine openings involved and the high point of the immediate terrain ranges from 112 feet to 254 feet and would indicate that, without extensive drilling information, sealing of these mines to prevent the discharge would not be advisable. Therefore, we recommend improving surface drainage in unreclaimed strip mine areas and

randomly reclaimed strip mine areas and restoration of surface drainage in the deep mine areas through total reclamation of strip mined areas. Recontouring and revegetation of all strip mine workings affecting surface drainage in the areas of the major sources should be undertaken in order to reduce or eliminate percolation of surface waters into the deep mines with the subsequent discharge of heavy pollutants.

c. Major Source 107 is the flow of water impounded outside the barrier and spoil pile of an active or recently active strip mine. Recontouring and revegetation is recommended here in order to restore normal surface drainage patterns, i.e., total reclamation.

d. A tabulation of these sources is presented in Appendix C.

e. Upon completion of mine refuse dump removal and strip mine reclamation, a monitoring program should be established to determine the effectiveness of the abatement program for the Dents Run Watershed.

2. Minor Sources:

A further reduction of acid waters in Dents Run and its tributaries can be achieved by elimination or reduction of the minor sources. Sources 104, 105, 106, 110, ill, 112 and 113 are deep mine discharges

of varying quantity and severity. At 104, 105 and 106, flows are merely seepages downs lope from the mine openings and not measurable for quantity. Sources 110 through 113 are deep mine discharges averaging from 3,000 gallons per day to 12,000 gallons per day and the maximum daily acid load contribution from these sources is less than 2% of the total acid load. Recontouring and revegetation, as recommended for the strip mine workings for the major sources, is expected to achieve similar results for Sources 104, 105 and 106.

Recontouring and revegetation of other strip mine workings as described in Paragraph (d) below is expected to achieve similar results for Sources 110 through 113.

b. Sources 114 through 122 are mine refuse piles for which we recommend removal and disposal. A tabulation of these sources appears in Appendix C along with the specific recommendation for removal and disposal of each and an individual cost estimate therefore.

c. Sources 123 through 125 are strip mines, either active, unreclaimed or randomly reclaimed. Recontouring and revegetation to as close to the natural state as possible is recommended, or total reclamation.

d. In addition, we recommend that all strip mine workings within the watershed area, with the exception of that

east of Little Bear Run as shown on Plate 9, be

recontoured and revegetated, or totally reclaimed.

e. Upon completion of mine refuse dump removal and strip mine reclamation, a monitoring program should be established to determine the effectiveness of the abatement program for the Dents Run Watershed.

3. Surface Drainage

a. Recontouring and revegetation to the natural state will restore natural drainage patterns and eliminate acid runoff from strip mine workings.

B. IMPLEMENTATIONS:

The majority of strip mine workings to be recontoured and revegetated that affect Major Sources 101 and 102, 103, 107, 108 and 109 are located on privately owned lands as are the deep mines from which drainage is affected by these strip mine workings. Therefore, necessary rights of entry or suitable means of access must be obtained before work can commence.

C. SUB-SURFACE DRAINAGE:

As stated previously, we estimate that less than 10% of the pollution in Dents Run results from sub-surface drainage due to the geologic structure in the Porcupine Hollow sub-basin. Because of the geologic structure, it. will be impossible to

completely eliminate acid contributions from this drainage.. However, since the sub-surface drainage results from absorption of surf ace waters, the amount of this drainage can be reduced by effecting a more rapid runoff of surface waters and eliminating ponding, therefore resulting in less waters percolating through the soil and following the impervious coal layer along the syncline to its collection point in Porcupine Hollow.

D. ANTICIPATED RESULTS:

We estimate that total reclamation of strip mine workings will result in a reduction of pollution from major sources of approximately 60% with the same being true of Minor Sources 110, 111, 112 and 113. For minor sources not specifically identified, we estimate a 20% reduction in pollution. For Minor Sources 114 through 122, the mine refuse dumps, we estimate an average 807 reduction from removal of the dumps and reclamation of strip mine areas. Further, we estimate that total reclamation by recontouring, revegetation and surface water diversion of strip mine areas will achieve a reduction of 80% of pollution contributions from presently unreclaimed areas and a reduction of 40% of pollution contribution from those areas which presently are random reclaimed.

E. CORRELATION WITH BENNETT BRANCH:

We would further recommend that an investigation into the effect of Dents Run on the pollution of Bennett Branch be made to determine what percentage of the average daily acid load in Bennett Branch is contributed by Dents Run. Such an investigation would involve establishing a correlation of flow and pollution in both streams over a given period. Such data should be accumulated prior to embarking on a program involving a major expenditure to effect an abatement of pollution in Dents Run to ascertain the economic feasibility of the program. If the Dents Run contribution to Bennett Branch is relatively minor and abatement of pollution in Dents Run would not significantly reduce the pollution in Bennett Branch, the funds required for implementation of the Dents Run program might well be better utilized elsewhere.

COST ANALYSIS

Total strip mine reclamation is the recommendation of this report. However, it is also recommended that the removal of mine refuse dumps be correlated with strip mine reclamation by using mine refuse material as fill in recontouring of strip mine workings. Therefore, the cost estimate is presented in two phases, Phase A for mine refuse removal and Phase B for strip mine reclamation beyond the utilization of mine refuse.

PHASE	A	B
COST	$171,700	$2,794,000
% Total abatement of Acid Load in Watershed	3.72% 145 lbs/day	61.81% 2409 lbs/day

Summaries of Phase A and Phase B costs are presented on following pages. The estimated percent of pollution contribution for each source includes the measured value plus the estimated contribution from adjacent strip mine workings which we have recommended be totally reclaimed as the method for achieving abatement from all sources. This, in turn, has established the priority index for the various sources and produces a relationship between abatement costs and estimated percent of abatement expected.

PHASE A - COST SUMMARY

SOURCE NUMBER	PRIORITY NUMBER	EST. % POLLUTION	RECOMMENDED ABATEMENT METHOD	COST	EST. % ABATEMENT	EST. % POLLUTION ABATED	SUB-BASIN
114	11	1.38	Remove mine refuse dump-reclaim Strip Mine Area B	$ 47,700	72	.99	Dents Run
115	22	.14	Remove mine refuse dump-partially reclaim Strip Mine Area A	8,500	86	.12	Porcupine Hollow
116	21	.17	Remove mine refuse dump-partially reclaim Strip Mine Area A	8,800	88	.15	Porcupine Hollow
117	17	.44	Remove mine refuse dump-partially reclaim Strip Mine Area A	14,500	88	.39	Porcupine Hollow
118	16	.60	Remove mine refuse dump-partially reclaim Strip Mine Area C	21,800	89	.53	Porcupine Hollow
119	20	.35	Remove mine refuse dump-partially reclaim Strip Mine Area C	14,000	89	.31	Porcupine Hollow
120	18	.42	Remove mine refuse dump-partially reclaim Strip Mine Area C	15,300	89	.37	Porcupine Hollow
121	23	.21	Remove mine refuse dump-reclaim Strip Mine Area E	8,800	37	.08	Porcupine Hollow
122	12	.90	Remove mine refuse dump-reclaim Strip Mine Area D	32,300	87	.78	Porcupine Hollow
				$171,700		3.72	

PHASE B - COST SUMMARY
STRIP MINE RECLAMATION

SOURCE NUMBER	PRIORITY NUMBER	EST. % POLLUTION (INC.STRIP MINES)	RECOMMENDED ABATEMENT METHOD	ACRES	COST	EST. % ABATEMENT	EST. % POLLUTION ABATED	SUB-BASIN
101 & 102	5	5.10	Total reclamation of adjacent strip mine workings	18	$ 36,000	55	2.81	Porcupine Hollow
103	4	14.47	Total reclamation of adjacent strip mine workings	52	200,000	61	8.83	Porcupine Hollow
104	14	1.12	Total reclamation of adjacent strip mine workings (accomplished with Sources 103 & 109)	--	-- --	60	.67	Porcupine Hollow
105	19	.59	Total reclamation of adjacent strip mine workings (accomplished with Sources 103 & 109)	--	-- --	60	.35	Porcupine Hollow
106	15	.97	Total reclamation of adjacent strip mine workings (accomplished with Sources 103 & 109)	--	-- --	60	.58	Porcupine Hollow
107	1	19.92	Total reclamation of adjacent strip mine workings.	173	865,000	80	15.94	Porcupine Hollow
108	2	19.32	Total reclamation of adjacent strip mine workings	162	696,000	65	12.56	Porcupine Hollow

SOURCE NUMBER	PRIORITY NUMBER	EST. % POLLUTION (INC. STRIP MINES)	RECOMMENDED ABATEMENT METHOD	ACRES	COST	EST. % ABATEMENT	EST. % POLLUTION ABATED	SUB-BASIN
109	3	20.28	Total reclamation of adjacent strip mine workings	46	$ 122,000	59	11.97	Porcupine Hollow
110	9	2.08	Total reclamation of adjacent strip mine workings	32	124,000	57	1.19	Dents Run
111	13	1.07	Total reclamation of adjacent strip mine workings	18	81,000	70	.75	Dents Run
112	7	3.22	Total reclamation of adjacent strip mine workings	46	185,000	56	1.80	Porcupine Hollow
113	8	2.17	Total reclamation of adjacent strip mine workings	36	145,000	57	1.24	Porcupine Hollow
123	10	1.35	Total reclamation of strip mine workings	25	110,000	80	1.08	Cole Draft
124	6	3.77	Total reclamation of strip mine workings	70	230,000	54	2.04	Cole Draft
125	24		Accomplished with 112 and 113	--	-- --	--		Porcupine Hollow
					$2,794,000		61.81	