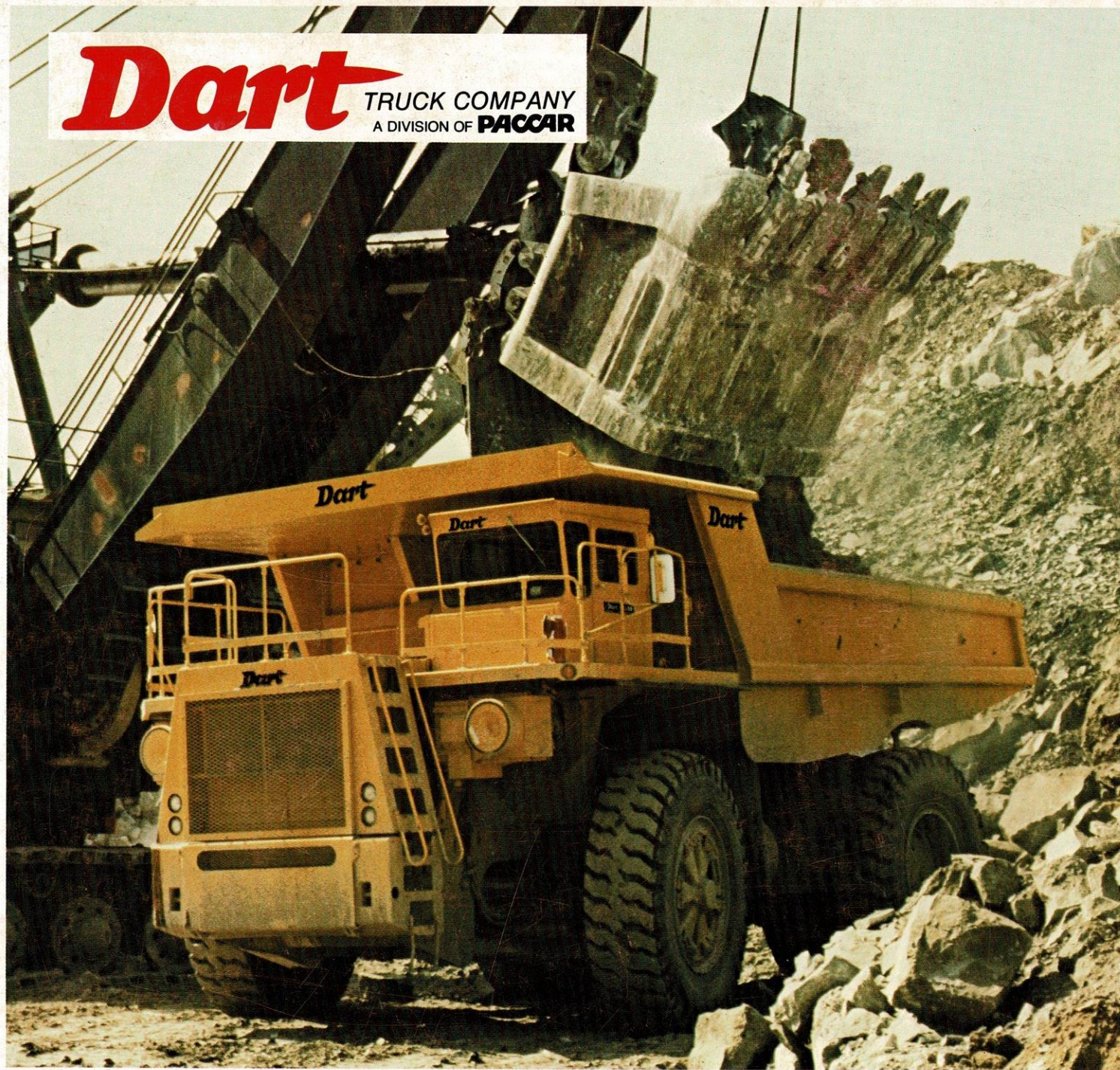


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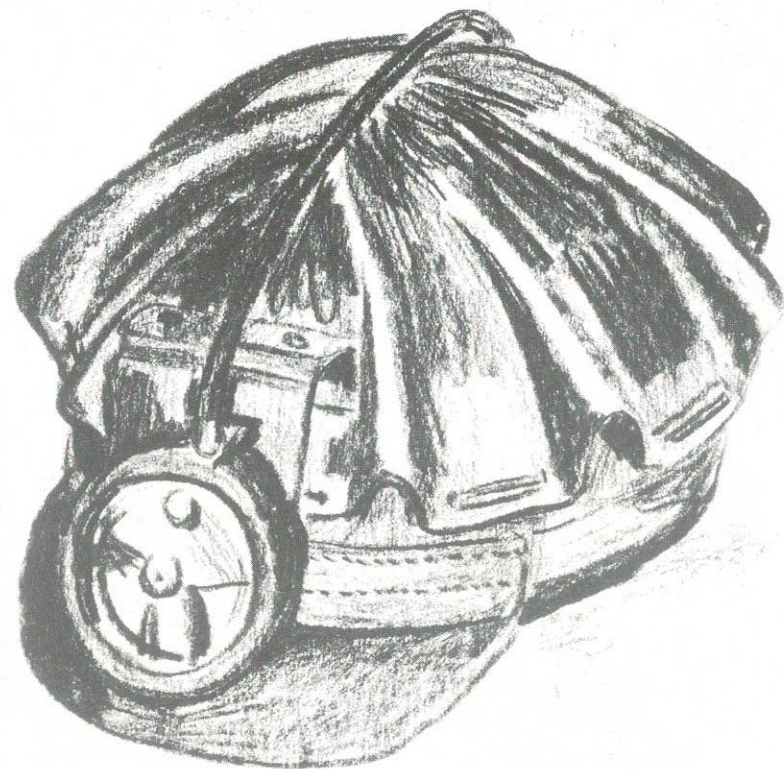
QUARTERLY
SUMMER, 1977



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(Above) Watershed Control as Practiced in The Orient



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SUMMER 1977

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Summer 1977

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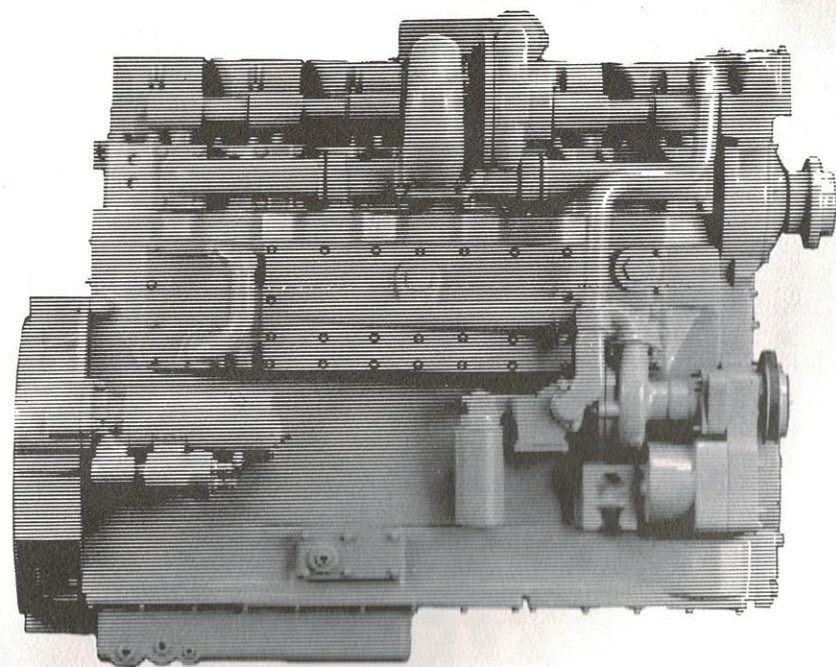
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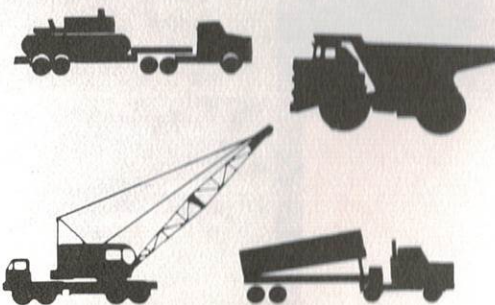
ABOUT THE COVER

The terracing of hillsides as practiced in the Orient is one effective means of controlling water runoff. The implications are obvious for flood prone areas in which surface mines have been successfully reclaimed. But flood control and surface mining and reclamation techniques have more in common. See related reports on pp. 5-7-9 and pp. 21-22-23-25-26.

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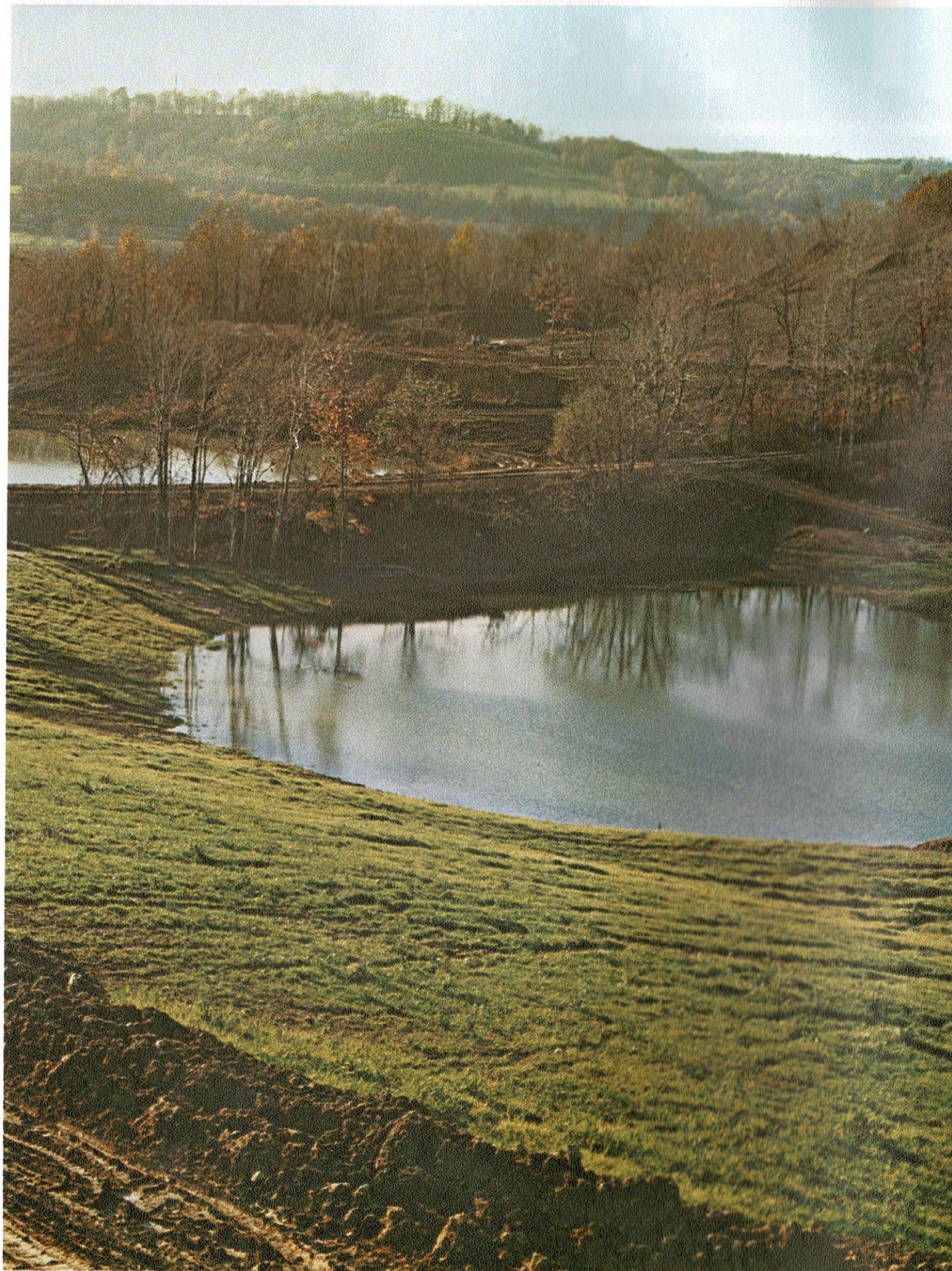
"LIEBHERR, with nearly 25 years of experience in hydraulic excavators and over 30,000 machines produced, is what we were looking for in a manufacturer.

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Association Report Refutes Flood Charges

Following is a reprint of the text of the Association's report on the flood which struck several counties in southern West Virginia in early April of this year.

Association President Ben Lusk expressed his satisfaction that state and federal governments are finally showing an interest in the issue of surface mining in flood prone areas. Governor Rockefeller has appointed a commission to investigate, and on the federal level, the House Subcommittee on Energy, Environment, and Resources is looking into the matter.

"It seems that every time a natural disaster of this type occurs," Lusk stated, "the surface mining industry comes in for criticism. We have tried to provide some insight, but of course our findings are always somewhat suspect in some quarters."

"We think that it will be best for all concerned, particularly flood victims, when this whole issue is completely out in the open."

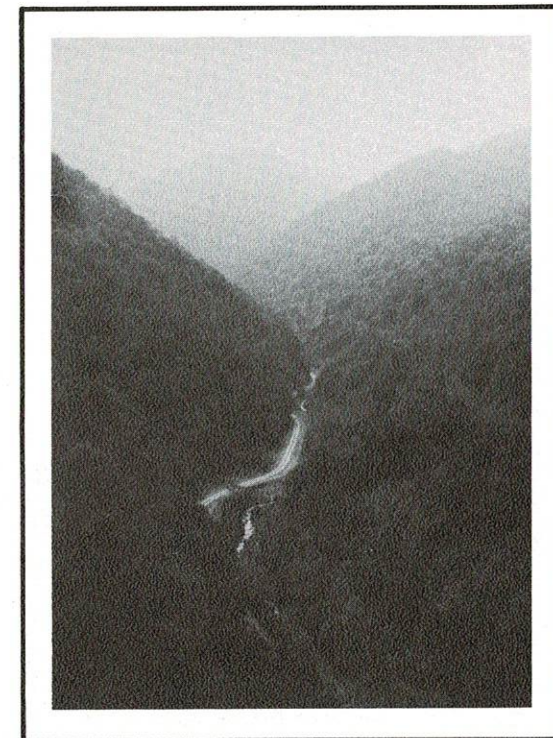
Following the flood in the Mingo, McDowell, Logan County area of southern West Virginia in early April of this year, there were, again, attempts to link the extent of flood damage with the surface mining industry.

Once more recognizing the need to answer these charges before the public, the West Virginia Surface Mining and Reclamation Association has not only gathered information about this flood in particular, but also about flooding in general in the southern West Virginia area.

In the course of its investigation, WVSMRA researchers talked with representatives of the State Department of Natural Resources, the National Weather Service, the U. S. Forest Service, the Army Corps of Engineers, the WVU School of Agriculture, residents of the flooded areas, and hydrologists, soil scientists and other experts within the mining industry.

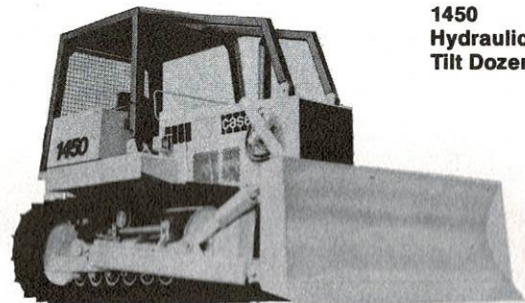
The WVSMRA is encouraged by indications on the part of federal and state governments to conduct their own independent investigations, as the Association has advocated for five years. The WVSMRA has compiled, as outlined in this report, a substantial amount of information indicating that the effects of surface mining on flood situations are positive ones. Therefore, the Association welcomes outside objective investigations, believing that they will reach the same conclusions.

In attempting to put to rest this controversy, it is the goal of the WVSMRA to turn its full attention to working with the state, federal, and local governments and the citizens of West Virginia in alleviating the immediate problems of the flood stricken areas and minimizing the effects of such natural disasters in the future.



Heavy rainfall plus steep slopes plus narrow valleys equals high flood waters.

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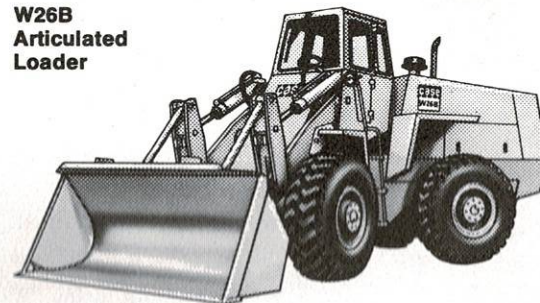
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CONSTRUCTION

PRELIMINARY FINDINGS

I. THE APRIL FLOODING IN SOUTHERN WEST VIRGINIA WAS MAINLY THE RESULT OF ALMOST UNPRECEDENTED RAINFALL OVER A VERY SHORT SPAN OF TIME.

A. There is general agreement that this was the most severe precipitation event on record for that area. Specifically, the National Weather Service could not pinpoint the storm frequency. However, it is known to be in excess of 60 years, since no storm of greater severity has occurred in the 60 years for which records have been kept.

B. NWS estimates of how much rainfall occurred vary widely within the storm area, but it is known that the populated areas of Mingo and McDowell counties received 4-7 inches in a 24-hour period. This is equivalent to more than one month's rainfall in the summer for the same area. Rainfall in the more mountainous areas ranged up to 15 inches which of course contributed heavily to runoff and stream swelling.

II. THE FLOODED AREA HAS A HISTORY OF FLOODING BOTH BEFORE AND AFTER THE ADVENT OF SURFACE MINING, AND IN FACT PRESENTS OPTIMUM NATURAL CONDITIONS FOR FLOODING.

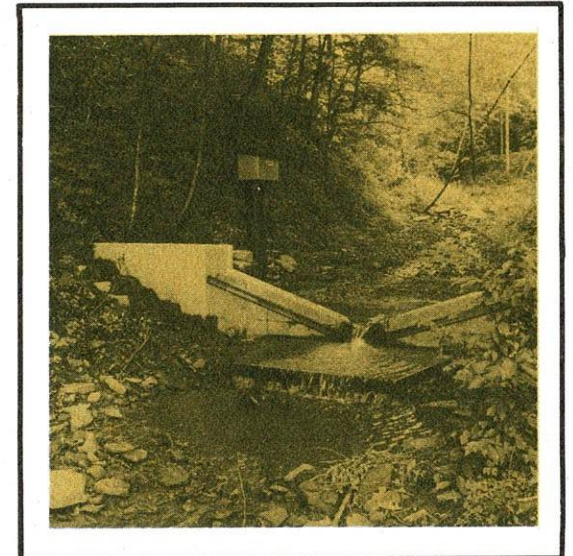
A. As described in the 1972 **Gilbert Flood Investigation Report**, the terrain in southern West Virginia combines those characteristics that are most conducive to flooding. These include steep slopes which accelerate runoff, narrow stream channels which have low capacity to handle excess runoff, and thin topsoil which of course severely limits water retention during periods of high intensity rainfall.

B. Forest fires have contributed heavily to the flooding problem for some time by destroying forest litter and damaging topsoil and devegetating, all of which further reduces water retention capacity. Mingo county is considered one of the ten hottest fire spots in the entire United States. Thousands of acres burn every year and this spring presented no exception.

C. Flooding and flood damage occurs in this area on an almost annual basis, which is quite natural since housing, roads and industrial construction have all encroached on the natural stream bed. A case in point is the flooding in Gilbert in 1972. Gilbert exists in the middle of what nature provided as an emergency spillway for heavy rainfall. When the water level rises above stream bed capacity, it has no where else to go but to inhabited areas. Surface mining was charged in some quarters with having been a major contributing factor in the Gilbert flood. Subsequent investigations proved these charges groundless.

III. SURFACE MINING DID NOT RESULT IN INCREASE RUN OFF FROM WATERSHEDS INTO STREAMS. ON THE CONTRARY, RATHER STRONG EVIDENCE EXISTS TO INDICATE THAT SURFACE MINES INHIBITED THE DOWNHILL FLOW OF WATER AND THUS, FLOOD HEIGHTS.

A. There can be little doubt that active surface mines played a part in inhibiting flood waters. Many practices common to every active surface mine and reclamation project are identical to those long recommended by con-



U.S. Forest Service Monitoring Station


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servationists as anti-flood and erosion measures. Prominent among these are siltation ponds and diversion ditches, required of every mining operation since 1971. In addition, all surface mine sites, both active and inactive have been terraced as a matter of course during mining operations. This practice tends to control the flow of water as to speed and direction.

B. Willie Curtis of the U. S. Forest Service conducted studies of watersheds in Kentucky and West Virginia during the April floods. He observed the watersheds that were undisturbed yielded significantly more water during peak flow than adjacent watersheds which were up to 50% mined. In both cases the mined watersheds gave off more water on the days following the flood, indicating at least temporary water retention. In addition, the total yield for the nine-day period was greater in the undisturbed areas. Apparently an inch or more of rain was permanently retained in the mined watersheds. Mr. Curtis attributes this mainly to the breakup of underlying bedrock by surface mining which creates underground storage pools, and to a lesser extent, the presence of siltation ponds.

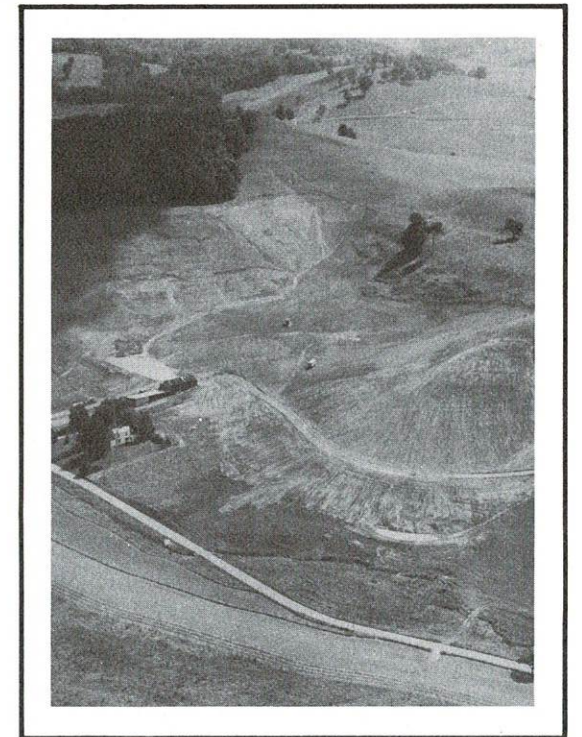
C. It is unclear exactly what role sediment control structures played in retarding water runoff. Certainly, such ponds can slow down the flow of water, particularly newer ones which are less filled with sediment deposits. There is apparently no data available as to exactly how great this effect was. Two points should be made. First, a failure in one of these ponds would certainly result in increased runoff and acceleration within a small area. Secondly, state inspectors sent to the area by then Reclamation Chief Ben Greene, determined that no sediment pond failed during the entire time of the flood.

D. The idea that surface mining and other land disturbances do not necessarily correlate to flood heights is not a new one. A Corps of Engineers report from 1958 states in part, "It is important to note that the greatest floods (in the Kanawha Valley) those of 1840, 1861, and 1873, occurred when the drainage area above Charleston was still covered by virgin forest."

E. Along the Kanawha River, for which extensive data is available, there is no significant difference in high water figures in comparing the decades of the 30's, 40's, and 50's when surface mining began to be conducted extensively. Specifically, the figures reveal a slight downward trend following the advent of surface mining.

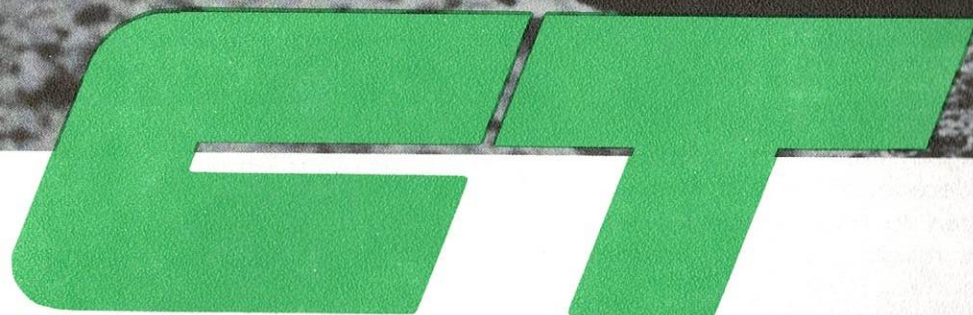
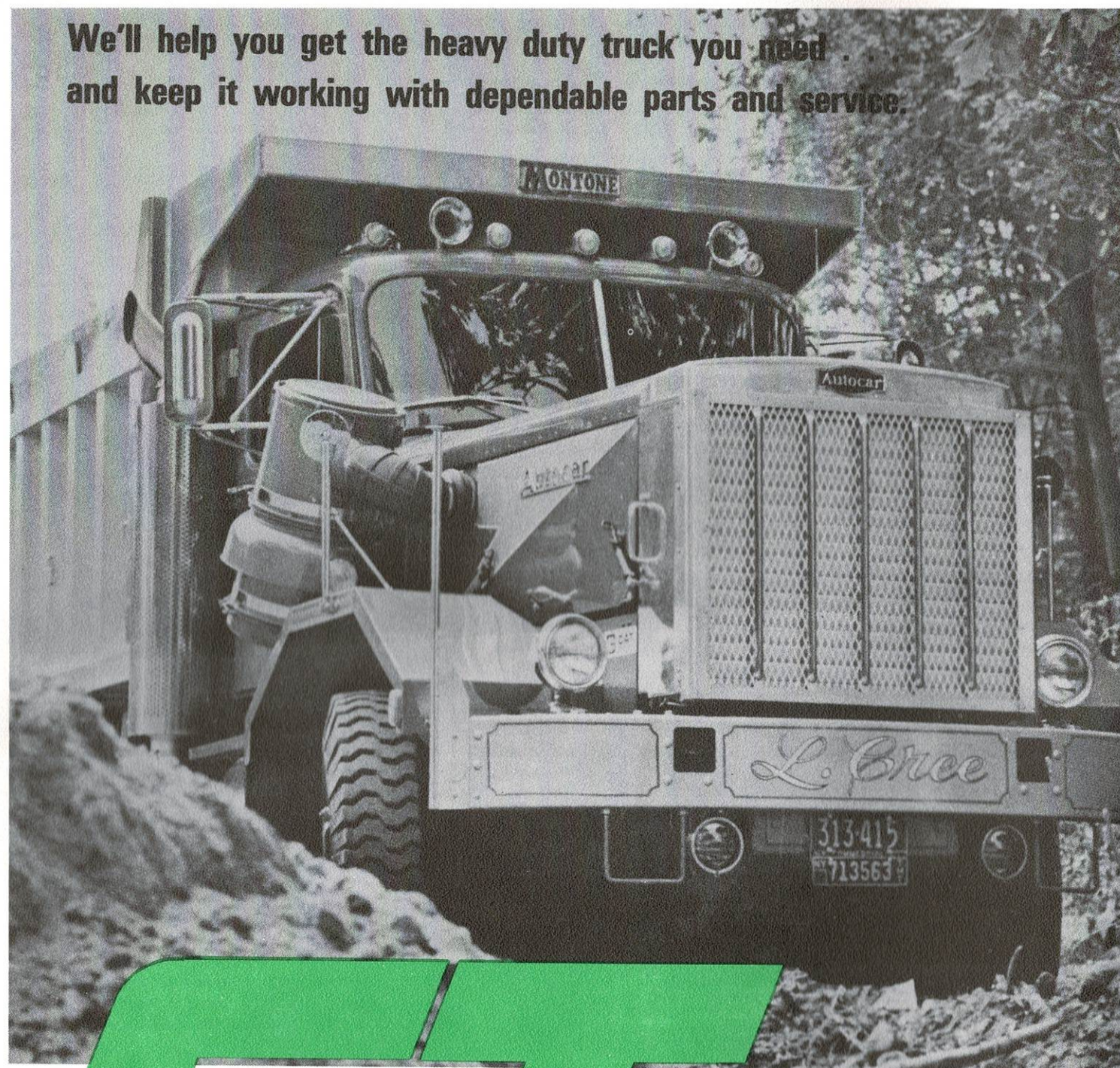
F. Along Horse Creek, which is unmined, and Panther Creek in McDowell county, which has not been mined extensively, residents reported flood waters higher than ever before in memory. Thus we have another indication that this flood was a direct result of natural conditions both as to cause and severity.

G. It is apparent that sedimentation did wash into streams from surface mines abandoned before current laws took effect. However, Willie Curtis discounts this as a major factor in flood heights. He pointed out that even if stream beds were half filled, and that would be an extreme example, the water level would be raised by only a few inches.



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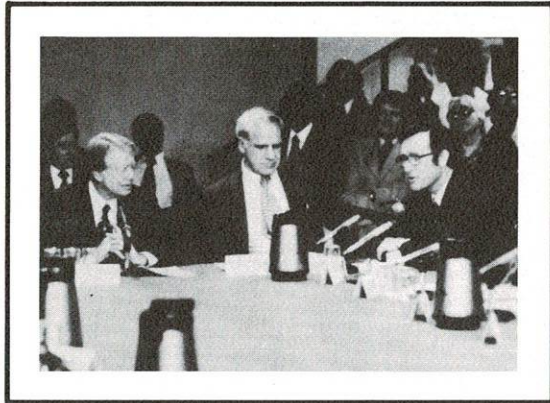
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Carter Cites Appalachian Coal



Governor Jay Rockefeller, Energy Advisor James Schlesinger, President Carter.

President Carter predicted a greater dependence on and higher production of coal during his visit to West Virginia, March 17, 1977.

"I want to make sure that a substantial part of the coal comes from Appalachia and the eastern part of the United States," he said.

Carter was in Charleston to participate in an energy-environment discussion, held in the conference center of the State Capitol Complex. The 19-member panel included James Schlesinger, the President's assistant and chief energy advisor; Cecil Andrus, Secretary of the Interior; Douglas Costle, administrator of the Environmental Protection Agency; Senator Jennings Randolph, D-WV; and Governor John D. Rockefeller IV.

Carter stated that he favored the federal surface mining bill pending in Congress, and Governor Rockefeller expressed his support of the bill, adding that West Virginia would restore the mined land to original contour at a cost disadvantage. Secretary Andrus informed the Governor that the legislation would be modified to deal with various problems, including those associated with mountaintop removal. He added that federal surface mine inspectors would not be assigned to states already having a sufficient inspection system.

The air pollution issue was also brought up during the discussion. Carter said it was possible for the nation to have clean air, clear streams and a balanced budget to meet the needs of the people. He noted that Georgia had set air quality standards at ground level a long time ago and pollution at power plants was being dispersed through 1,100 foot high stacks. During the question-answer session that followed, Senate Minority Leader Sam Kucic, (R-Hancock) asked the President why Ohio and Virginia could burn northern high sulfur coal, but not West Virginia.

Senator Randolph informed the group of a program designed to help the small coal operators increase production. Urging the President to support the bill, Randolph noted that the smaller mining companies in West Virginia and four other Appalachian states, produced 150 million tons in 1974. These small operators, he emphasized, are the foundation of the eastern market.

During the two and one-half hour conference, Carter also stressed conservation of our energy resources, and spoke out against diminishing the nation's supply of oil and gas.

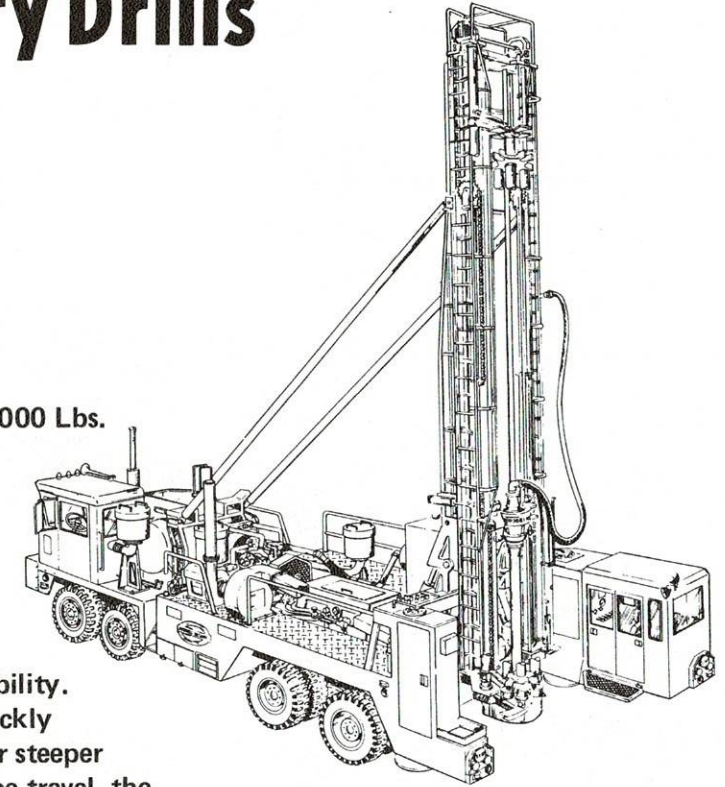
Touching briefly on the comprehensive energy program he would present to Congress April 20th, Carter said, "There is no question that we have to save energy and increase the use of coal."

Carter concluded the discussion, stating his concern about the state's environmental quality. "Almost heaven," he said, "will always apply to West Virginia."

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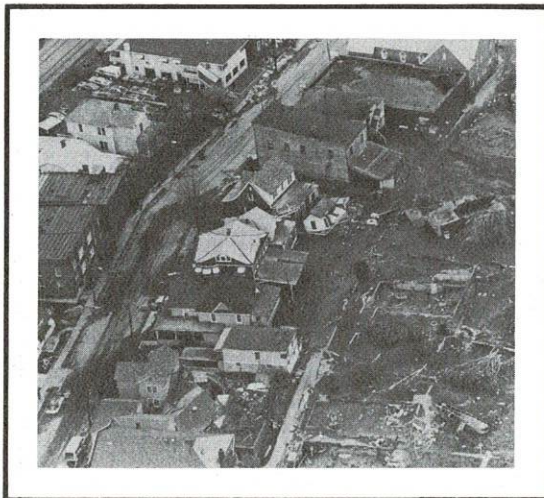
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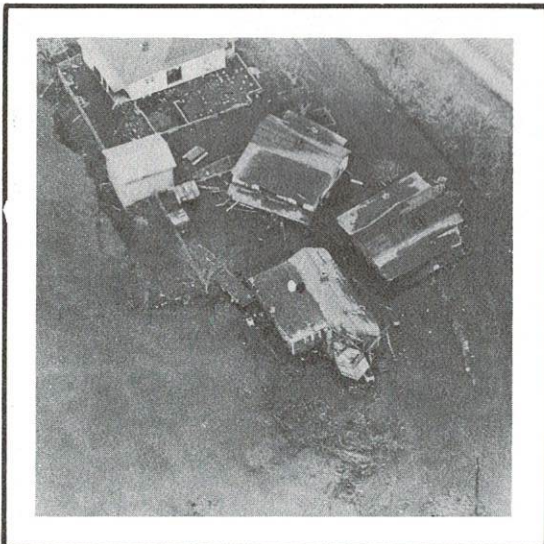
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Coal People Care



Aerial view of Matewan



Aerial view of Williamson area

The following is reprinted with permission of Coal People Magazine, and was written for that publication by Harmon Marks and Al Skinner.

Coal people by the thousands rallied to the aid of flood-ravaged friends and neighbors in the Coal Country of eastern Kentucky, West Virginia and Virginia during dreadful flash floods of late April.

Nobody waited to be asked. Nobody had to be asked. They just came. Bulldozers appeared. . . pumps pumped. . . generators sang. . . and huge fleets of trucks and endloaders roared into the flooded areas in a massive cleanup.

Even more importantly, perhaps, is that the people came, volunteering by the hundreds, simply to help coal friends during a moment of despair.

It was a remarkable and heartwarming response from friends for friends in need.

We're all familiar with how it began, some 15 inches of rainfall during a 24-hour span, like a giant bucket of water being poured out suddenly and with very little warning.

All this water on a hard, dry surface with nowhere to go, but to rush off swollen river and creek banks to submerge whole towns and neighborhoods.

This part of the story is well known.

The real story, though, came afterwards. The reaction from coal people. . . the many many backbreaking hours of volunteer work, the thousands of dollars contributed outright by coal companies along with their equipment and people to attack the slimy wreckage.

Charles Graley of near Matewan, Mingo County, operates the Mingo Mine Construction Co. in the Williamson area, is a good example of a man who volunteered equipment and people. When contacted, he said, "we got a flash flood watch again," and this was weeks after the cleanup had been started. Graley recalled that "it was three or four days after the flood before anything could be started, really, in the way of cleanup.

"Quite a few companies around the area helped," he continued. Graley's home and business were flooded, but he still managed to haul a truckload of clothing from Charleston to his home area.

Rawl Sales and Processing Co. provided trucks and equipment to help the comeback in the Williamson-Matewan area. General Manager Sid Young and his chief engineer, Walter Hatfield, were involved too. Kermit Coal and Wolf Creek Collieries, operated by Hub and John Cline, helped. Coal operators Lucas and Bob McCoy of Phelps, Ky. sent assistance in the way of equipment and people.

The Matewan community saw a beautiful new school building suffer more than \$700,000 damage in the flooding, but the students finished the year's term under a half-day program.

'Nobody Waited To Be Asked'

Tom Black of Big Sandy Electric in Pikeville, Ky., resumed business while still cleaning up from the flood. "I feel the people and the coal companies should be commented for helping clean up and getting people going again."

Moses Chase, a familiar name in the Pikeville-Prestonburg area, of the Chase Construction Co. moved in with his big trucks to haul and move rubbish away. He also hauled in new equipment for the Citizens Bank of Pikeville.

Frank Justice and Jim McGhee of Mac Mining Co. brought in a hydromatic seeder and pumped clean water into homes and businesses.

Whayne Supply Co. of Pikeville provided equipment for cleaning out the streets and also donated and set up an emergency generator for the local hospital. Clint Rowe volunteered his tank truck to take clean water from the creek, hauling it into town for cleaning up.

The Pittston Coal Group sent a fleet of 18 pieces of heavy equipment to southern West Virginia, including Williamson, tabbed for relief work. "Once we flew over the area and realized the seriousness of the situation," Wes Blakely, Pittston's director of communications said, "we called the governors of Kentucky and West Virginia and offered to donate our help."

The heavy equipment, valued at several million dollars, was operated by men also provided by Pittston.

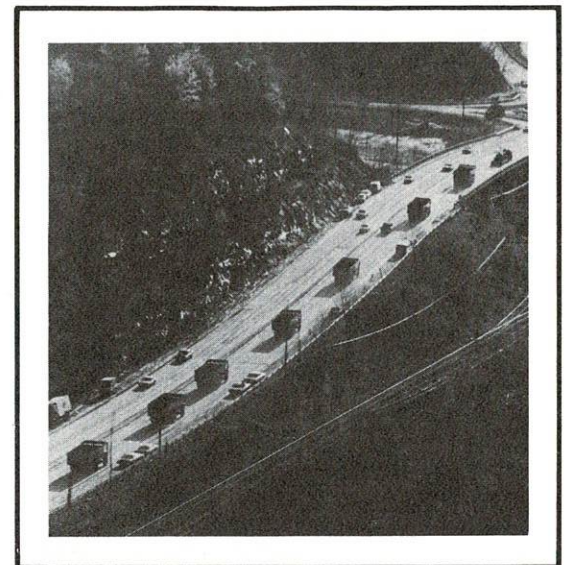
Jennings Ramey, vice president and branch manager of the Pikeville National Bank in Phelps, Ky., said that "many individuals who weren't hit by the flood came in to help. When this thing happened, it was so sudden people had to do for themselves and bring in their own resources. . . this came from the coal companies.

"Without the quick and volunteer assistance from people and the coal this could have been even more tragic than it was," he continued. "The companies volunteered too, out front. . . they didn't have to be asked, they just stepped forward the very moment they were needed."

Joseph and Leonard McCoy of Caney Branch Coal Co. were among the early volunteers. They allowed all their equipment to be used, including pumps, water tanks, endloaders, bulldozers, etc. This area was one of the last to be heard from, because of poor communications, which emphasizes the importance of quick response from the coal companies.

These are only some of the representative companies who volunteered money and equipment to assist flood victims. It would take volumes of paper to list the many individuals who helped.

But they know who they are. And they should be proud.



Clean up convoy heads for Williamson from Logan



The Pittston cleanup operation



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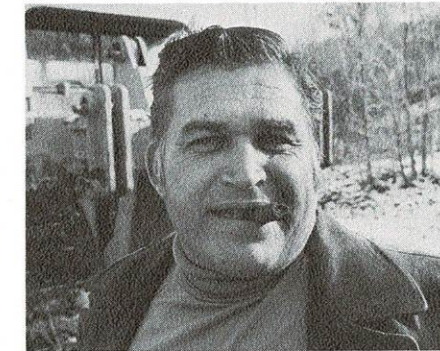
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"With this machine we can rip without having to shoot. We feel that being able to do this will cut our costs tremendously.

"We had some very steep grades and this machine walked right up and down, no problem. It is probably the most evenly balanced machine I've ever operated.

"It's a very efficient machine. It's very quick to recover and pick up a load—it doesn't hesitate



Mel Stininger, president, Stininger Mining Inc., Shinnston, W. Va., talks about his Komatsu 155.

a bit. It just runs smoothly. It'll just keep pushin' and pushin' and pushin'.

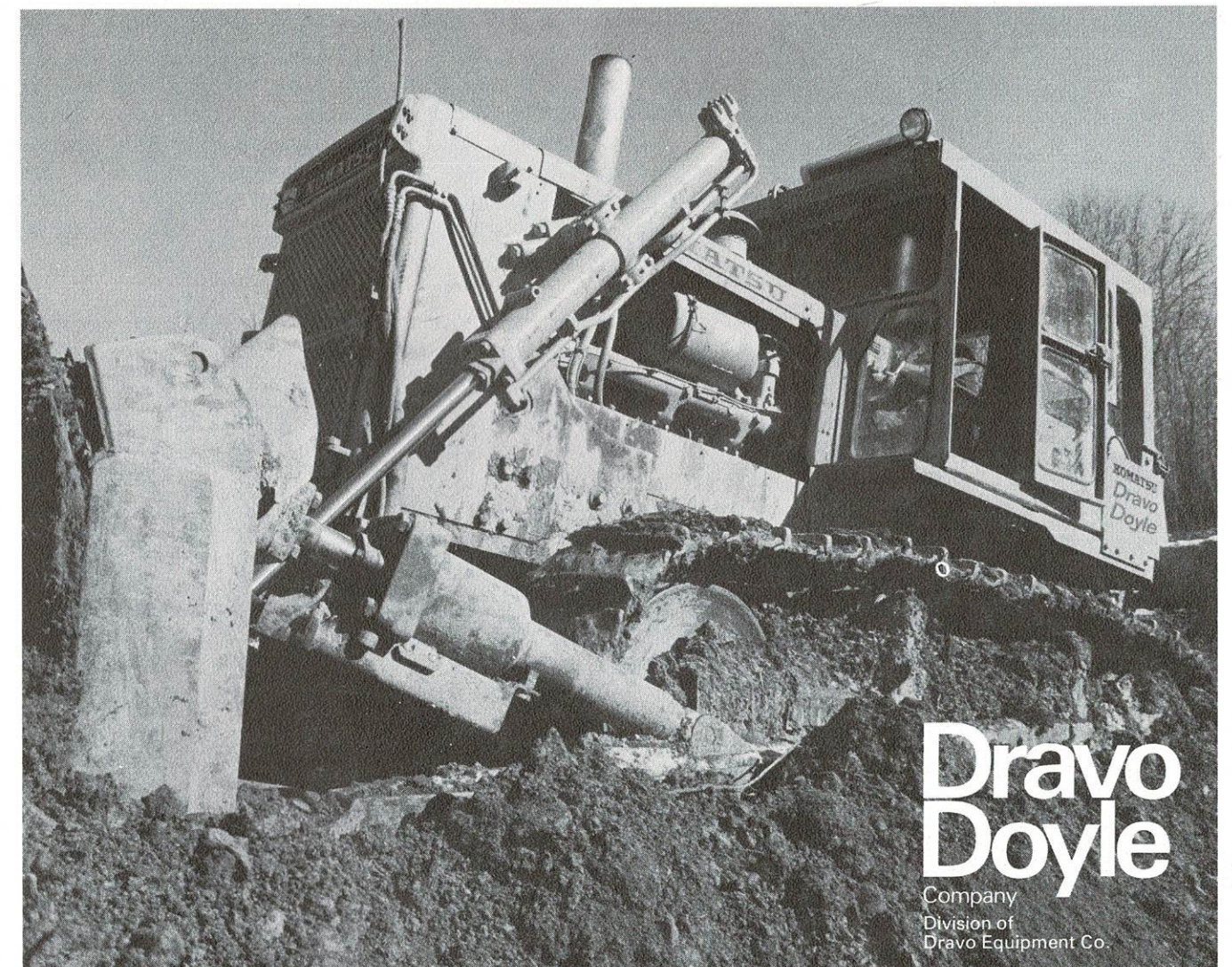
"And we haven't had one second's downtime with it.

"Dravo Doyle's tremendous. They're fine people. They have facilities handy to us, and their people stop by at least once a week to see if there's anything they can help us with. We feel privileged to do business with them—we really do.

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formance has thrilled us tremendously. I will say it's the best machine on the market today.

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Coal Boom?

President Carter's National Energy Plan advocates the development of renewable and essentially inexhaustible sources of energy for sustained economic growth. However, the implementation of the program will broaden rather than decrease regulation of the coal industry.

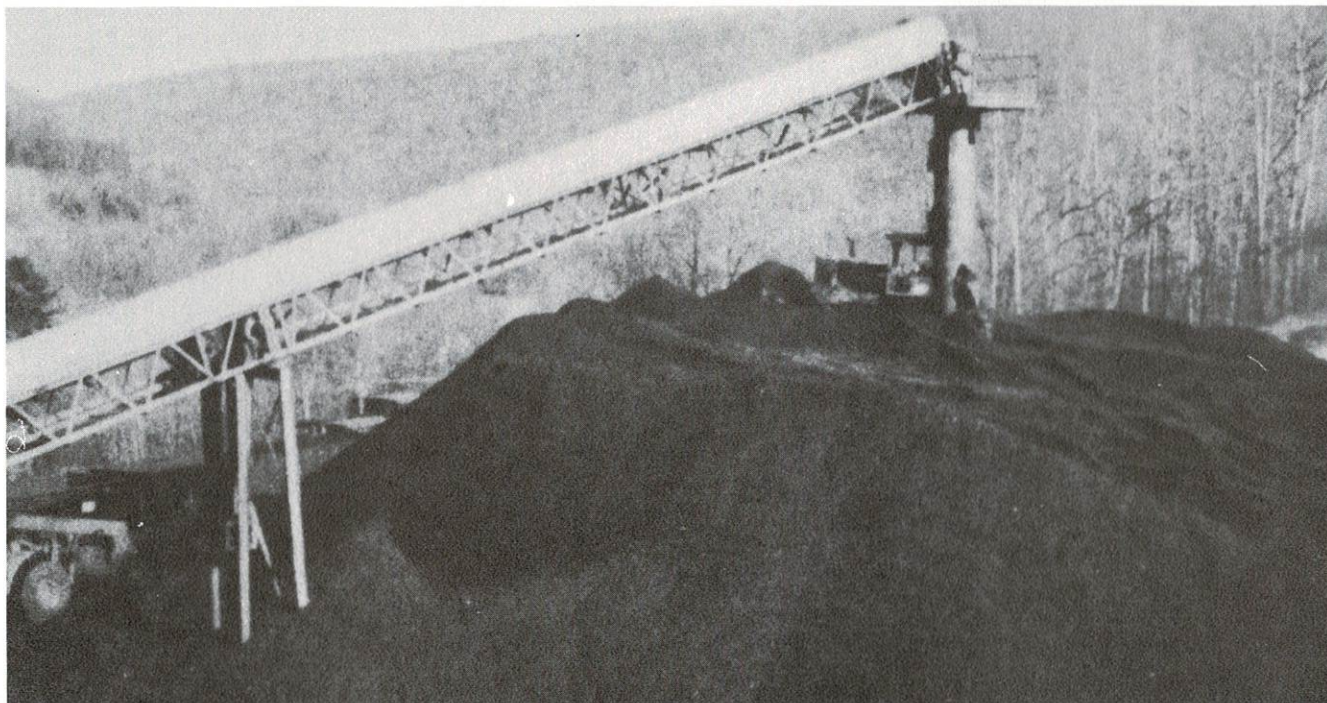
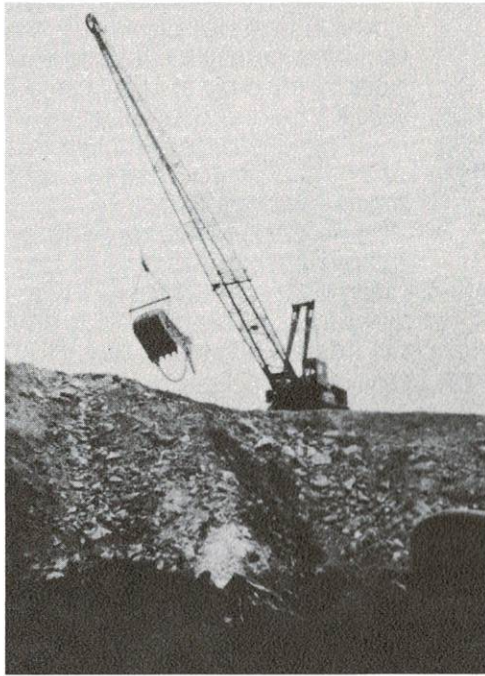
In light of the Administration's proposal for increased coal production, the coal industry is faced with more government regulation, particularly surface mining and reclamation, air quality and coal conversion. Also, the Administration is pushing additional regulation of coal mine health and safety, federal leasing and water quality.

Although coal is considered an unregulated energy industry in terms of direct economic regulation, this is actually a misconception.

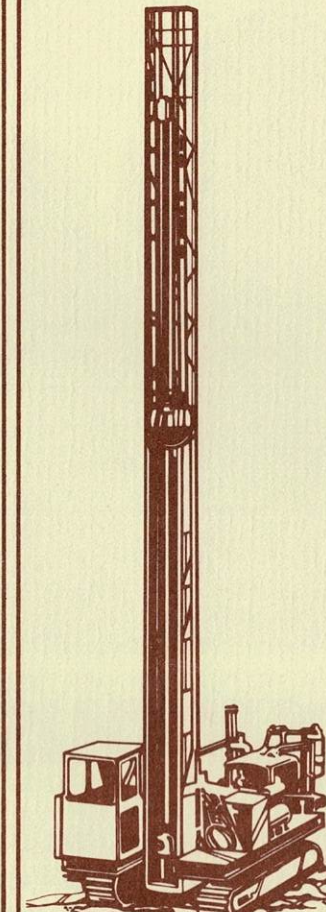
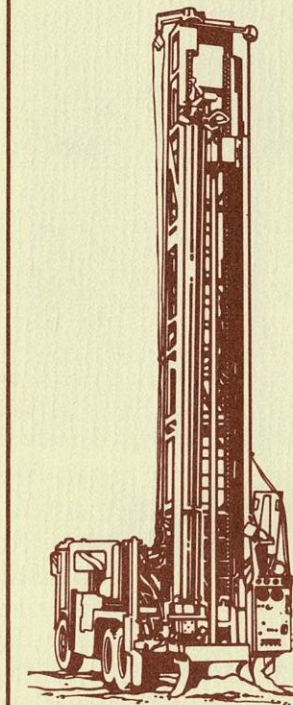
Carter's request of "large coal production increases in the highly populated eastern and midwestern regions, and the use of 400 million tons by 1985," is modest if government constraints are reduced or voided. However, in **The National Energy Plan**, a booklet released by James Schlesinger, White House energy advisor, the figure for increased coal production is set at 565 million tons, including 90 tons for export.

"Coal production is most economical when it is near major markets," the President said, adding that his proposed pollution control equipment requirements for coal-fired boilers "should stimulate even greater use of high-sulfur midwestern and eastern coal."

But, existing and proposed environmental requirements, such as tighter than necessary clean air regulations for the best available pollution control technology or plants burning low sulfur coal, will substantially increase costs and delay or prevent the greater mining and use of coal.



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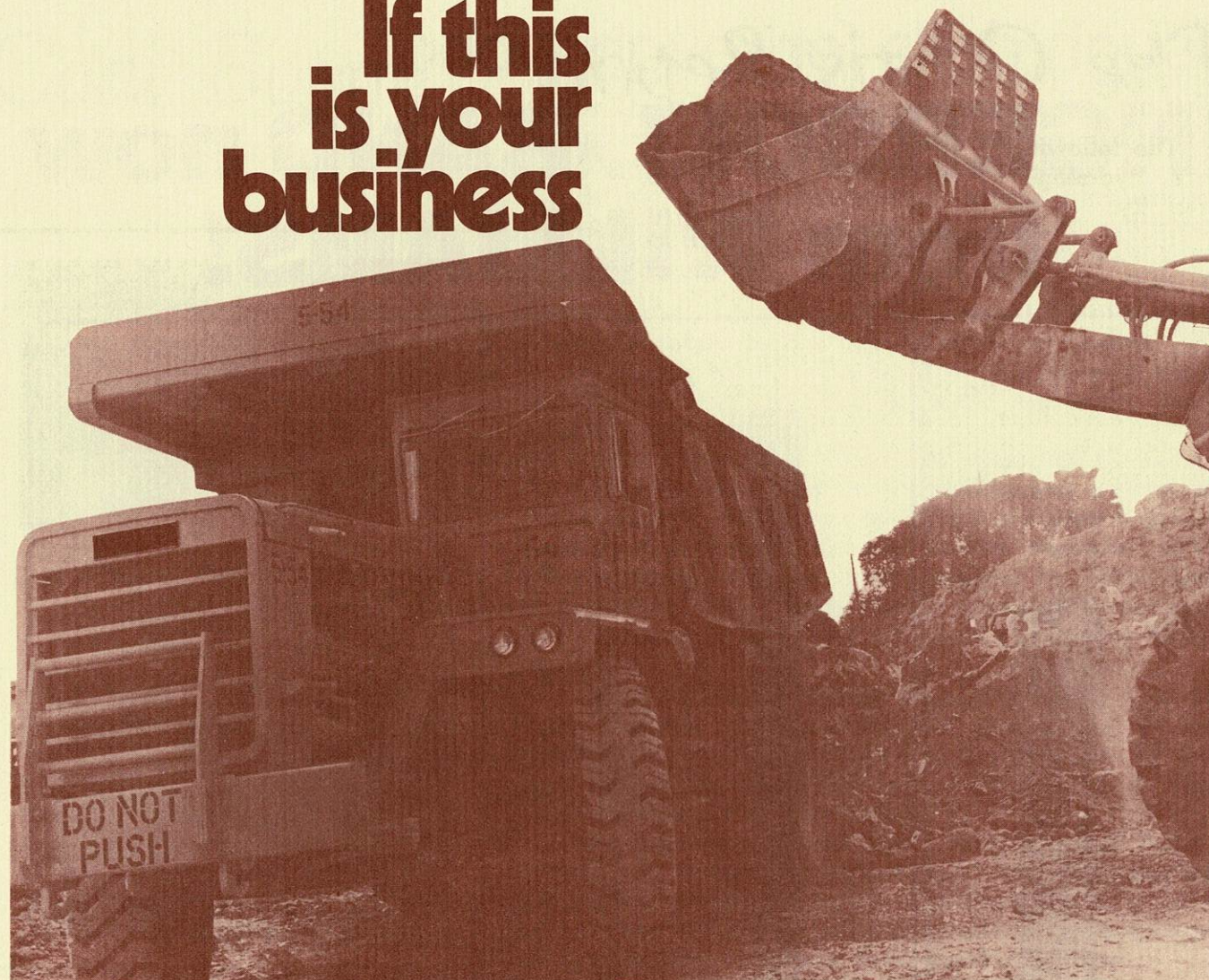
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The Curtis Report

The following report was written by Willie Curtis, hydrologist for the U.S. Forest Service, Berea, Ky.

On 4 April 1977 a major storm struck southern Appalachia. Reports were that it caused the worst flooding since 1957, or since 1939, or perhaps the worst in history.

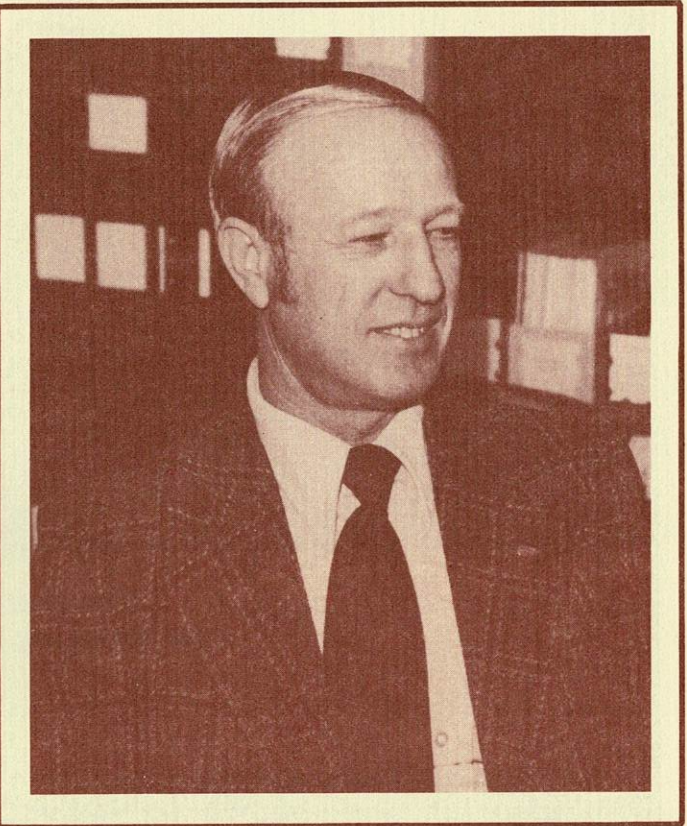
Many possible causes of the flooding have been discussed. Among these are forest fires, logging, agriculture, road building, construction on flood plains, and surface mining. But there are few quantitative data to support these conjectures.

One of the first attempts in the U.S. to evaluate the hydrologic impact of surface mining was at Beaver Creek in southeastern Kentucky. Flow from the mined watershed was more variable than that from the unmined control watershed, and also tended toward higher storm flows and lower base flows (Collier et al. 1970).

Strip-mined watersheds in Indiana showed an increase in base flow, apparently due to increased storage capacity. Agnew and Corbett (1973) reported that during the unusually dry summer of 1964, a number of streams draining strip-mined land were flowing while streams draining adjacent unmined areas of similar or larger size were dry.

Although some studies have been made, the effects of surface mining on the hydrograph of discharge remain largely unmeasured. In 1967 the USDA Forest Service's Northeastern Forest Experiment Station began a study of the effects of surface mining on the water resources of small Appalachian watersheds. Three unmined forested watersheds in Bear Branch, Breathitt County, Ky., were selected and instrumented for collection of streamflow and water quality data. Miller Branch and Mullens Fork are adjacent basins; Jenny Fork is about a mile away. Jenny Fork is unmined; Miller Branch and Mullins Fork have been surface mined. Two more watersheds, Dillon and Stover B, in Raleigh County, W. Va., some 120 miles from the Kentucky site, were selected and instrumented in 1969.

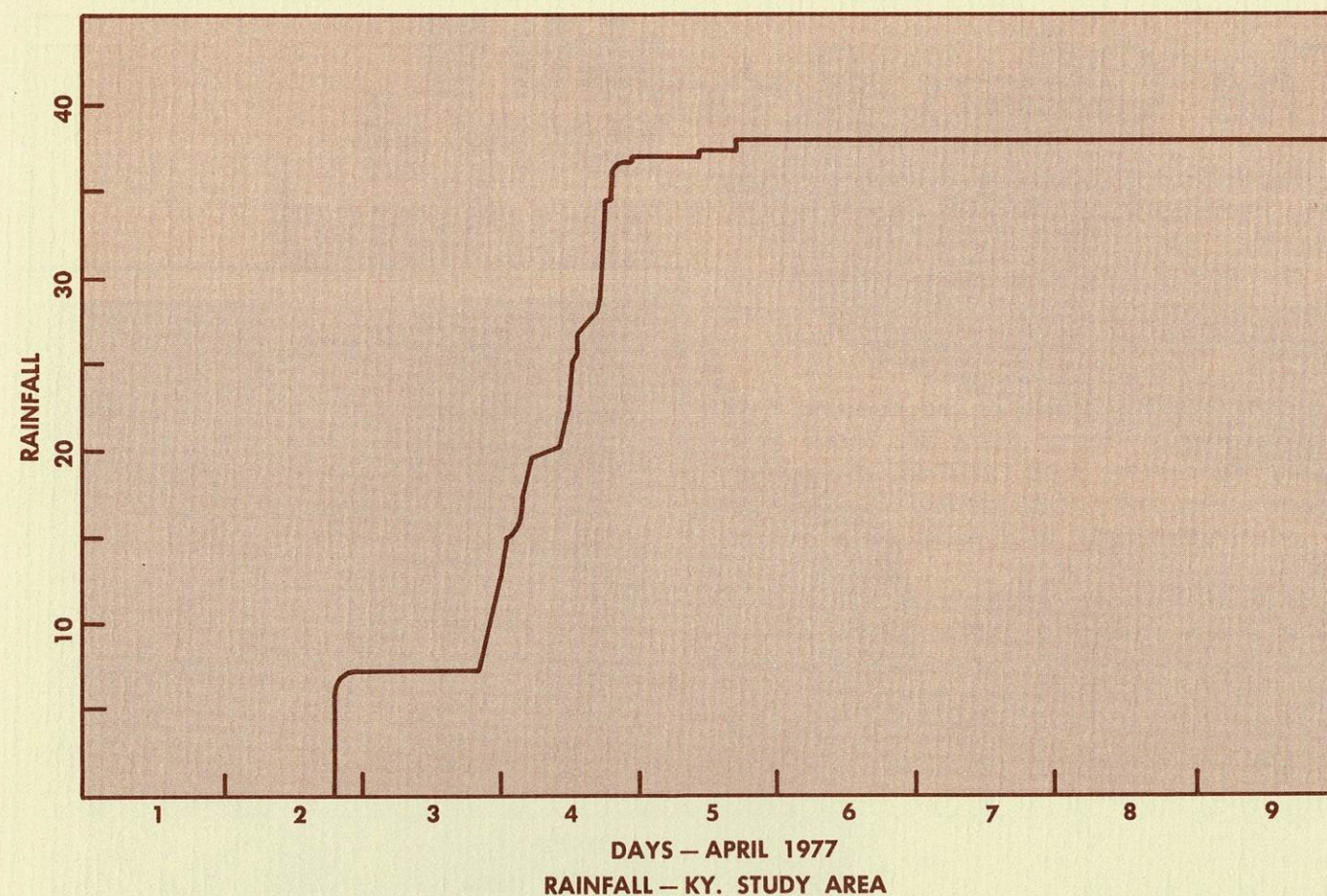
Sedimentation basins were built in Miller Branch and Mullins Fork in November of 1969, shortly after mining began. Their original storage capacities were 15.9 and 15.4 acre feet, respectively. In October of 1976, the remaining storage capacity was about 6.5 acre feet for Miller and 3.5 feet for Mullins; sediment from the mining operations occupied the rest.



Willie Curtis

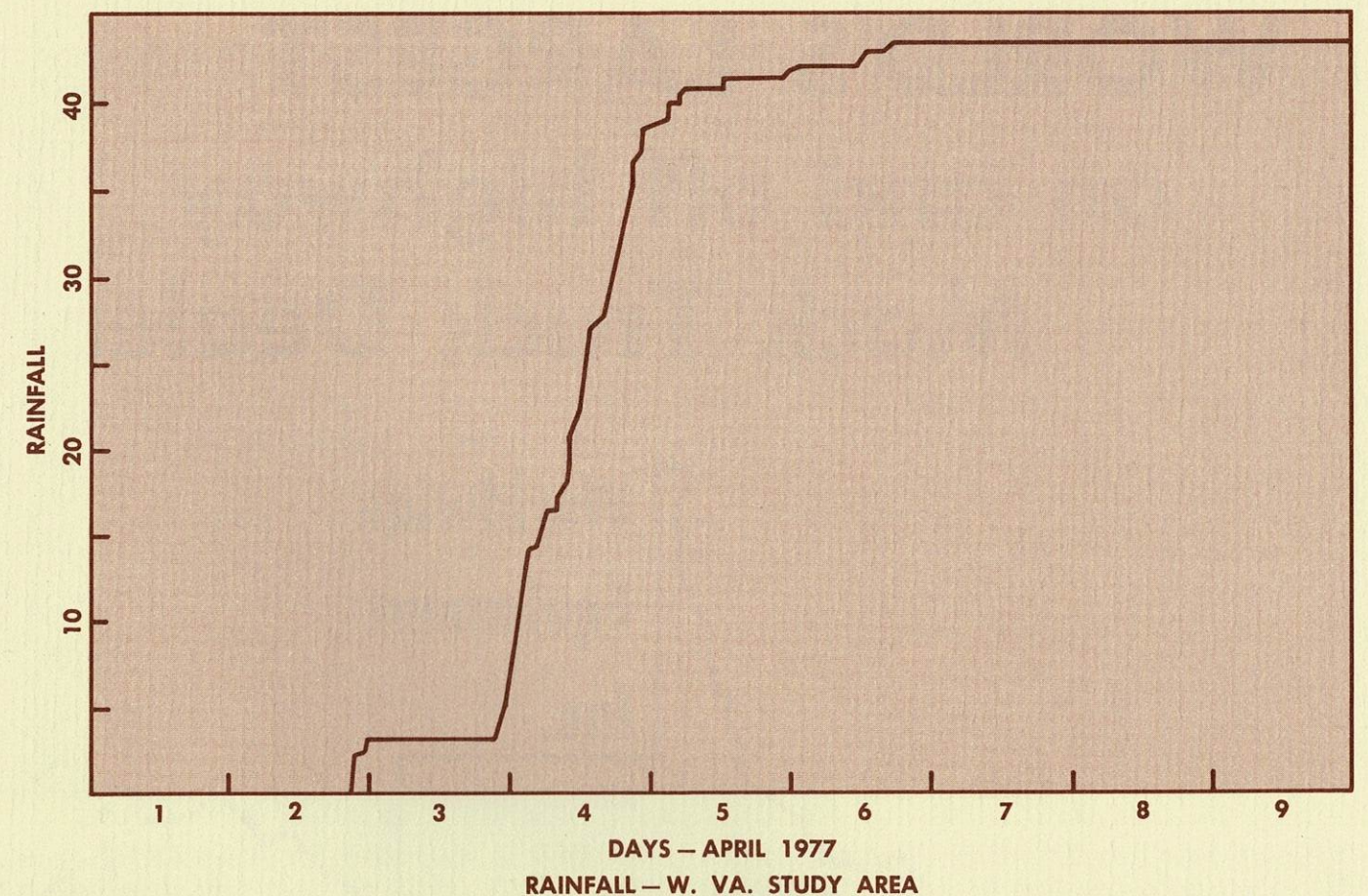
Descriptive data on the watersheds studied

Watershed	Area (acres)	Area disturbed by mining (acres)	Percent of area disturbed	Dates of mining	
				Began	Ended
Jenny	287	0	0	-----	-----
Miller	190	105	55	Aug. '68	Dec. '71
Mullins	327	151	46	Aug. '69	Oct. '72
Dillon	164	0	0	-----	-----
Stover B	446	250	56	Sept. '72	June '73



A complete detailed analysis of streamflow in relation to surface mining is underway and will be reported; some results of the study have already been reported (Curtis 1971, 1972, 1973, and 1974). But there presently is considerable interest in the flooding that took place during early April 1977, and it seems appropriate to share now some of the knowledge we gained during that period. Of course, the information from three watersheds in Kentucky and two in West Virginia does not necessarily apply to all watersheds in Appalachia, but it does provide some food for thought.

This case history covers a 9-day period beginning on 1 April 1977. There was no precipitation on 1 April. At the Kentucky site rain began at 1930 on 2 April and ended about 2245 after 0.72 inch of water had fallen. At about 2045 on 3 April it started raining again, and continued with periodic high intensities for about 26 hours, ending just before midnight on 4 April. The total precipitation was 3.70 inches. At the West Virginia site rain began at 2110 on 2 April and ended about 2345 with 0.31 inches. Rain started again at 2145 on 3 April and by midnight on 4 April, 3.85 inches had fallen on the watersheds. Additional small amounts fell on 5 and 6 April.



Data collected at other nearby gaging sites suggest that all the watersheds in each group received the same amount of rain; and the rain at the Kentucky site was almost the same as that at the West Virginia site.

At Jenny Fork (the unmined watershed), the 0.72 inch of rain on 2 April had little direct influence on streamflow; most of this water apparently went to recharge a moisture deficit in the soil. By the time the next rain started late on the 3rd, water was already stored in the soil; streamflow responded very quickly to rainfall. Note that during the two periods when rainfall intensity declined, streamflow decreased rather sharply. The peak flow came very near the end of the storm.

Runoff from Jenny Fork peaked at a rate of 160 cubic feet per second per square mile ($\text{ft}^3/\text{sec}/\text{mi}^2$) while Mullins peaked at 93 and Miller at 64. Unmined Dillon peaked at 109 and Stover B at 91. Table 1 summarizes the flow in both mean daily cubic feet per second per square mile and area inches per day for each of the 9 days. An area inch is the volume of water that would cover the entire drainage area to a depth of 1 inch. By comparing area inches for Jenny with those of Mullins or Miller Branch we see that

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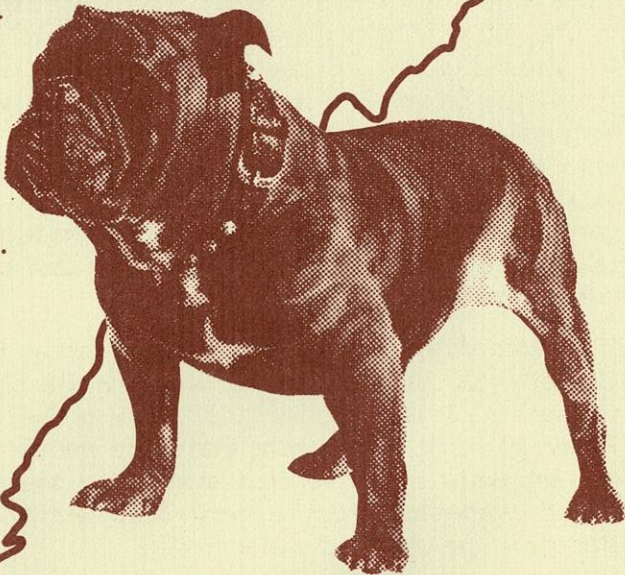
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SUMMARY OF STREAM DISCHARGES FOR THE PERIOD 1 APRIL TO 9 APRIL 1977

Date in April 1977	Unmined watersheds Jenny Fork		Dillon		Miller Branch		Mined watersheds Mullins Fork		Stover B	
	Mean daily ft ³ /sec/mi ²	Mean area inches per day	Mean daily ft ³ /sec/mi ²	Mean area inches per day	Mean daily ft ³ /sec/mi ²	Mean area inches per day	Mean daily ft ³ /sec/mi ²	Mean area inches per day	Mean daily ft ³ /sec/mi ²	Mean area inches per day
1	.577	.022	1.093	.041	.891	.033	.884	.033	.603	.022
2	1.392	.052	1.312	.049	1.160	.043	2.091	.078	.582	.021
3	4.176	.155	1.313	.049	3.116	.116	3.578	.133	.672	.025
4	70.060	2.606	40.508	1.506	33.808	1.257	38.488	1.432	33.016	1.228
5	19.481	.725	42.449	1.579	19.230	.715	16.047	.597	38.393	1.429
6	5.475	.204	12.422	.462	5.961	.222	5.768	.214	8.550	.318
7	3.356	.125	7.260	.270	4.059	.151	4.169	.155	4.250	.158
8	2.309	.086	5.512	.205	2.897	.108	3.424	.127	3.028	.113
9	1.646	.061	4.224	.157	2.206	.082	3.083	.115	2.386	.089
Totals		4.036		4.318		2.727		2.884		3.403

Jenny yielded nearly twice as much flow as Mullins and more than twice as much as Miller on 4 April; furthermore both Miller and Mullins yielded more water than Jenny for each of the next 5 days. In the West Virginia watersheds, unmined Dillon yielded about 18 percent more water on 4 April than Stover B. It is interesting that the West Virginia stream had more discharge on the 5th than on the 4th, just the opposite of the Kentucky streams. This is probably because the general eastward movement of the storm system caused the West Virginia streams to rise and peak later than the Kentucky streams.

According to our calculations, Jenny Fork yielded 4.03 area inches of water while Miller yielded 2.73 and Mullins 2.88 during the first 9 days of April. This means that more than 1 inch of rain went into retention storage in the two mined watersheds while very little went into storage in the unmined watershed.

Remembering that the data presented here are for only one storm on only two unmined and three mined watersheds, can we discern any implications? The soils in the unmined watersheds are relatively thin, generally from 1 to 3 feet thick. This means that water retention in these soils is about 3 to 10 inches. If this storage is filled, any water added will be available for streamflow. On the other hand, surface mining creates vast quantities of broken-up rock which provide storage space for large quantities of water.

This could account for the reduced peak flows and the reduced volume of flow as well as the higher depletion flow rates on the mined watersheds.

Unfilled sediment basins can reduce local peak flows and prolong discharge for a few hours by regulating release from relatively small headwater drainages such as those in this study. However, measurements made along the high water mark in the Kentucky watersheds on 26 April showed that neither of the basins had been filled to capacity during the study period. In fact at maximum storage the basin in Miller Branch held only 38,800 cubic feet—less than one acre foot. The Mullins Fork basin held less than 3,000 cubic feet during maximum storage. These volumes are so small relative to the total storm discharges that they could not have had any significant influence on either peak flow rates or total stream flow. This tends to support our theory that retention and detention storage is in or on the mine spoil.

The same pattern of streamflow response on surface-mined watersheds was documented for a major storm on 4 April 1977 in areas more than 120 miles apart. The magnitude of the response was less pronounced at the West Virginia site where a smaller percentage of the watershed had been disturbed by mining.

Data on the effects of surface mining on our water resource are badly needed by resource managers. These preliminary results suggest that conventional wisdom about disturbed land may not be a good guide to hydrologic effects.

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Representative Udall 'Impressed'

Members of the House Committee on Interior and Insular Affairs toured surface mining and reclamation sites during their visit to West Virginia, March 5th.

The congressional members were quite impressed with the mountaintop removal method and reclamation accomplishments.

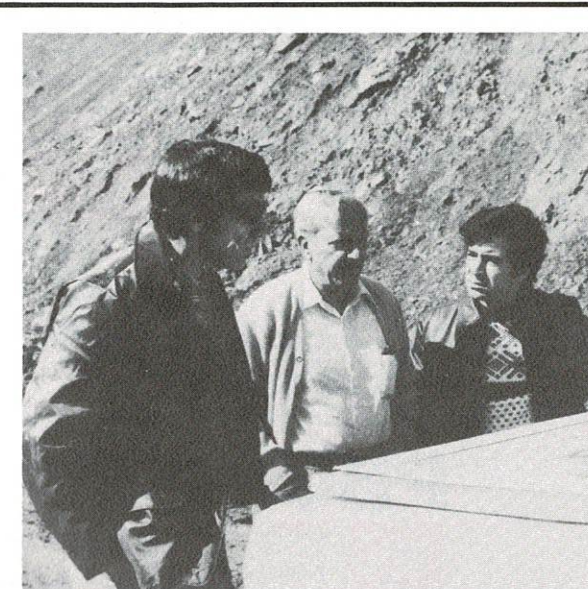
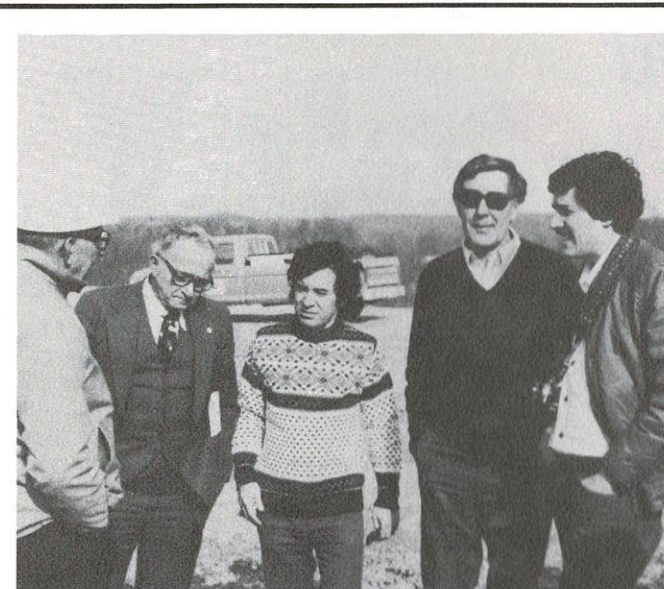
The helicopter tour organized by U. S. Congressman Nick Joe Rahall, II of Beckley, invited the committee to visit the state to see first-hand that effective reclamation is possible and is working well in West Virginia.

Rep. Morris Udall (D-AZ) said he was especially impressed with the state's first mountaintop removal operation at Piney Creek Coal Company—Vecellio and Grogan in Beckley. Admitting that he had "no quarrel with the West Virginia law," Udall added that HR-2 would probably be modified to permit mountaintop removal mining.

Committee members participating in the tour included Reps. Rahall, Morris Udall, Chairman of the Committee; Lamar Gudger (D-NC); Dan Marriot (R-UT) and members of their staffs.

Other participants included local members of the press; Ben Lusk, president of the WVSMRA; John Sturm, director of Technical Services, WVSMRA; and Ben Greene, Chief, Division of Reclamation, Department of Natural Resources.

The day-long tour included visits to surface mine sites; Lynn Land Coal Company; Lorado Coal Company, Buffalo Creek; Roland Land Coal Company; Piney Creek Coal Company; and Princess Susan Coal Company.



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THURSDAY, AUGUST 11

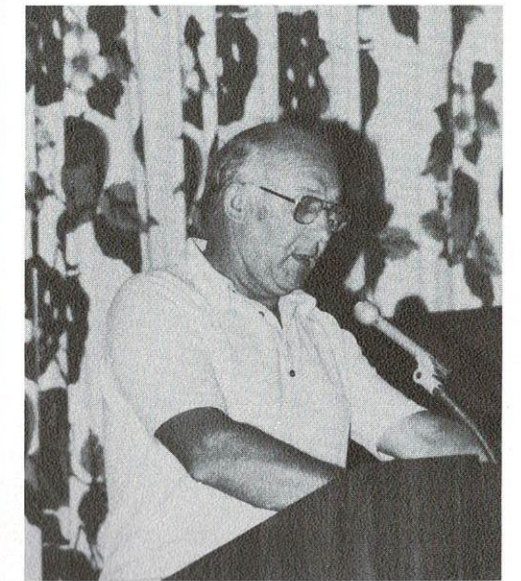
1:00-5:00 p.m. Registration Registration Lobby
1:00-3:00 p.m. Committee Meetings (At chairmen's discretion)
4:00-6:00 p.m. Board of Directors' Meeting.....Director's Room
6:00-8:00 p.m. Associate Cocktail Party Colonial Terrace

FRIDAY, AUGUST 12

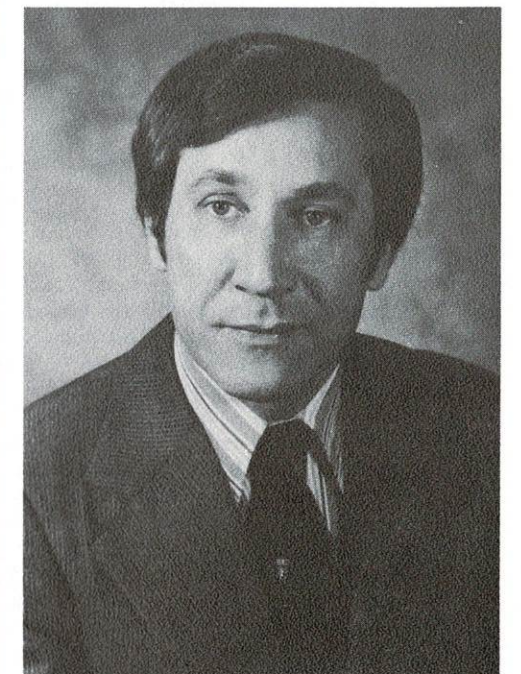
8:00-11:00 a.m. Registration Registration Lobby
7:30-9:30 a.m. Breakfast Meeting Chesapeake Hall
Membership Business Meeting, Including
Election of New Board Members
9:30 a.m. Ladies' Annual Golf Tournament Lakeside
Ginny Frasher, Chairman
(Please arrange your own foursomes &
contact Norman Mazey at the Pro Shop
for starting time)
9:59 a.m. Men's Annual Golf Tournament Old White
Fil Frasher, Chairman
(Please arrange your own foursomes &
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for starting time)
11:00 a.m.-12:00 noon Lecture and Sampling
of Wines Chesapeake Hall
3:00-5:00 p.m. Committee Meetings (At chairmen's discretion)
4:30-6:00 p.m. Registration Registration Lobby
6:30 p.m. Registration Kate's Mountain Lodge
7:00 p.m. "Fabulous 40's Party" Kate's Mountain Lodge
(Recreation of World War II)
(Costumes suggested, but optional—Everyone
is responsible for their own costumes—Limo-
usine transportation leaving from main en-
trance of hotel at 6:30 p.m.)

SATURDAY, AUGUST 13

8:00-9:00 a.m. New Board of Director's
Breakfast Meeting Director's Room
(Election of New Officers)
8:00-11:00 a.m. Registration Registration Lobby
9:00-10:00 a.m. "An Overview of the 1977
Federal Surface Mining
Control Act Chesapeake Hall
Benjamin C. Greene, President West Virginia
Surface Mining and Reclamation Association
10:00-10:15 a.m. Coffee Break
10:15-11:15 a.m. "The Role of the State Government in
Enforcing Surface Mining and
Reclamation in
West Virginia" Chesapeake Hall
James E. Pitsenbarger, Chief Division of Re-
clamation, West Virginia Department of Na-
tural Resources
11:15 a.m.-12:00 Noon "The Relationship Between Flooding
and Surface Mining
In Appalachia" Willie R. Curtis
U. S. Forest Service, Berea, Kentucky
1:00-5:00 p.m. Annual Tennis Tournament Hilltop Court
Bill Butler, Chairman
9:00 a.m.-12:00 noon Ladies' Bridge Tournament Trellis Lobby
6:30-7:30 p.m. Cocktails Colonial Terrace
7:30-9:00 p.m. Banquet Colonial Hall
Lawson Hamilton, Master of Ceremonies
Speaker David C. Callaghan
Director, West Virginia Department of
Natural Resources
9:00-9:30 p.m. Special Presentations Colonial Hall
9:30 p.m. Entertainment "World of Music"
Benny Benack and the Dodge Kids



Outgoing Chairman Frank Jennings



Main Speaker Dave Callahan

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Ben Lusk Resigns

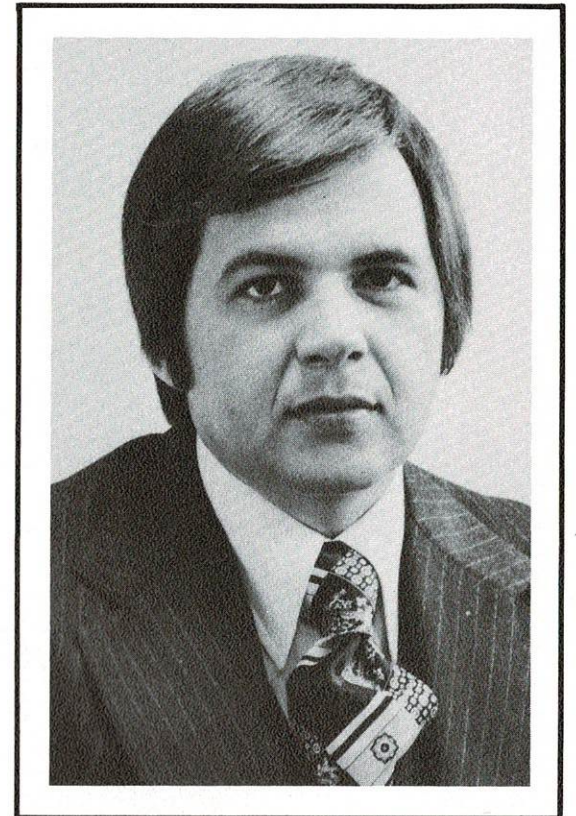
Ben E. Lusk resigned effective August 31, 1977, completing his sixth year as head of the West Virginia Surface Mining and Reclamation Association (WVSMRA), which is now recognized as the largest state trade organization of its kind in the country. The Association, under Lusk's direction, has grown to where it now boasts a membership of nearly 300 companies involved directly in surface coal mining in West Virginia.

Lusk attended the National University of Argentina in Cordoba as an exchange student in international relations before entering Bethany (West Virginia) College as a Benedum Foundation Scholar. There he received a Bachelor of Arts degree in Communications, in addition to receiving the E. E. Roberts Award as the outstanding journalism graduate in 1967. While working on his graduate studies at West Virginia University, he became involved with the Athletic Department and accepted the position as the Assistant to the Athletic Director in charge of public relations and promotion until June, 1971, when he joined the WVSMRA.

On joining the Association, he brought with him an honest, straight-forward approach towards solving complicated problems of surface mining, that has won the industry friends and respect worldwide. His initial responsibilities with the Association included public relations, advertising and promotion, but after only one year, was named Executive Director in charge of all the organization's affairs. Since June, 1973, he has also held the position of Director of the West Virginia Applied Research Institute, which coordinates various mining and reclamation research projects throughout the state. In June 1974, through a constitutional reorganization, the Association's Board of Directors named him permanent President.

During his six years with the WVSMRA, Lusk has become a well-known spokesman for the surface mining and reclamation industries. As founder and chairman of the International Mining & Reclamation Conference, he has made available to the coal industry an opportunity to exchange ideas and keep abreast of the rapidly changing technology through conferences held in both Germany and Poland.

Lusk is also on the West Virginia Board of Miner Training Education and Certification, the state's Black Lung Advisory Committee, a member of both the West Virginia and Charleston Area Chamber of Commerces and has been a member of various committees for the National Coal Association and the American Mining Congress. In addition, he serves on the Executive Committee for the West Virginia Research Steering Committee and the Council for Surface Mining and Reclamation Research in Appalachia.



Ben E. Lusk
WVSMRA President

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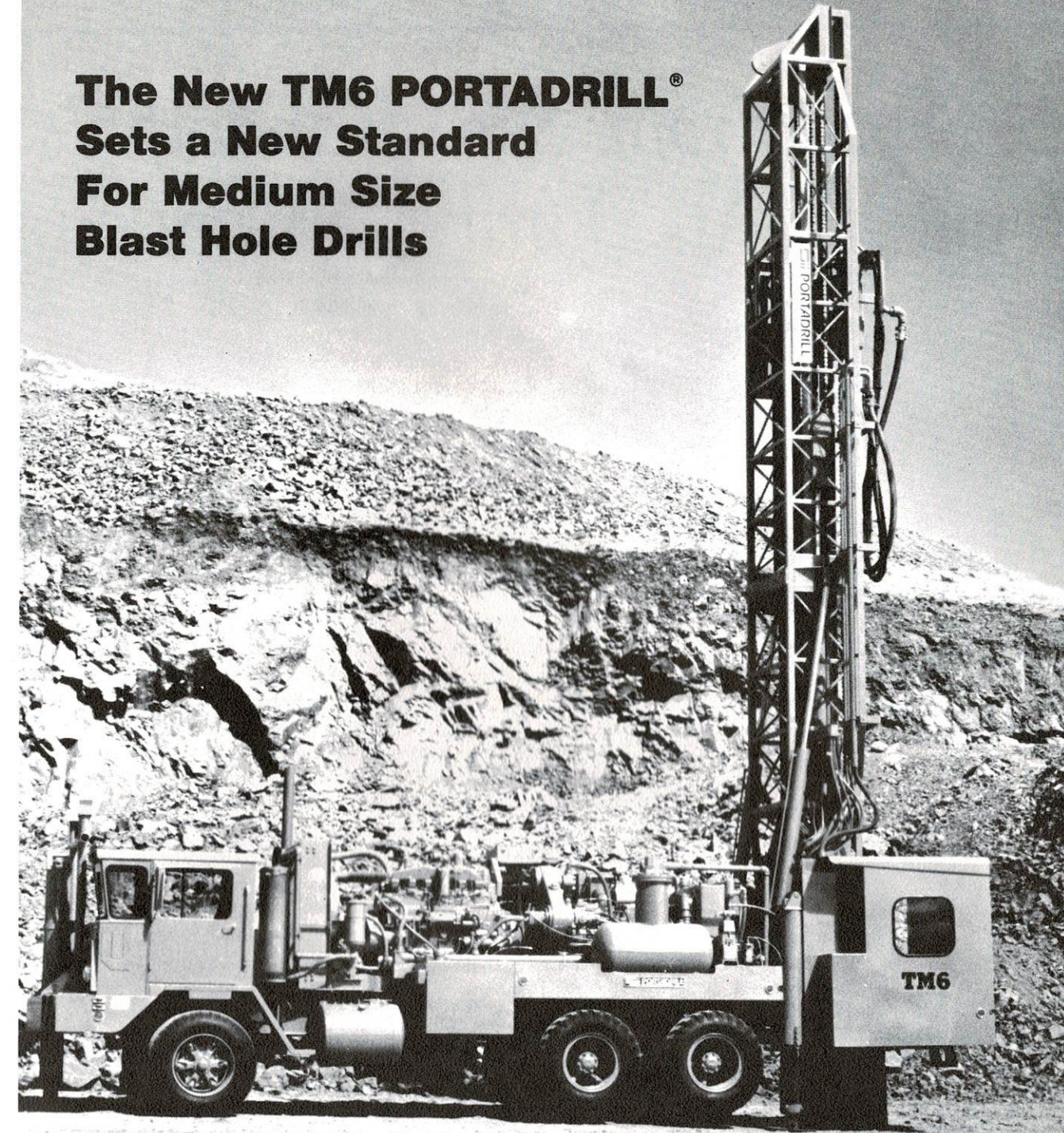
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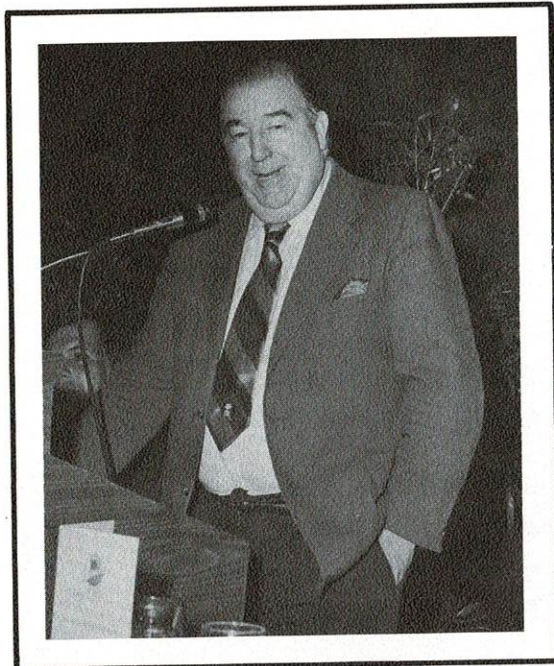
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Excerpts From Sen. Randolph's Remarks At Doral Convention



Senator Jennings Randolph addresses the Doral Convention.

The mining of coal — however it is accomplished — is important to the State of West Virginia. It is the mainstay of our economy and is the basis of the livelihood of thousands of our citizens. West Virginia's coal also is becoming increasingly important in determining America's long-range energy outcome. The latest energy crisis, precipitated by a prolonged and unusually coal winter, has focused on the need to make greater utilization of our most abundant energy resource — coal.

I am convinced that the outlook for coal production and utilization has never been brighter. There is a great challenge for the coal industry in West Virginia. It is one which I know every one will successfully meet.

As we mobilize ourselves to provide much needed coal, however, we must remember this great industry, like so many others, cannot carry out its responsibility in a vacuum. The production of energy is a vitally important national priority but it must be carried out in a way that is consistent with other equally important objectives. Paramount among these long-range goals is the protection of human health from the pollution that has been the by-product of our complex and industrialized society.

I am greatly concerned with meeting our Country's energy needs and with seeing that West Virginia coal occupies its rightful position in that effort. But as Chairman of the Senate Public Works Committee—soon to be the Environment and Public Works Committee—I am equally concerned that we maintain the momentum of recent years in achieving a cleaner and healthier environment. Energy production and environmental improvement are not conflicting goals. Both can be achieved for the benefit of our Country.

We must temper resource consumption with concern for the quality of the environment and the need for energy conservation.

The relationship between energy and environmental quality is important. We should agree that the issues surrounding energy and environmental quality are reconcilable.

Under the 1970 Clean Air Amendments, the States frequently established more stringent emission standards than necessary to meet national ambient air quality standards for the protection of public health and welfare. At the time the States decided the environmental controls deemed appropriate. If no longer viewed equitable, these standards can be revised by the States on the basis of public hearings. This is provided for by existing law.

Our Republic has survived because concerned citizens reconciled many opposing viewpoints in a balanced and responsible manner. In the implementation of environ-

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Resolving Energy And Environmental Concerns



Senator Randolph receives award from As-sociation President Ben Lusk.

mental laws, however, this has not always been the case. I am confident that the American people will continue to demand that reasonable judgments be applied in the search for equitable solutions to these difficult problems.

ENERGY RESEARCH AND TRAINING

Coal cannot be developed without trained professional and technical manpower. Coal cannot be utilized in an environmentally and socially acceptable fashion unless the Nation first produces the professional people needed in large numbers and on a crash basis.

The coal industry and labor estimates that an additional 180,000 to 200,000 workers will be needed between 1975 and 1985. This compares to 192,000 employed in the coal industry in 1975.

Upwards of 22,00 engineers and technicians will be required by the coal industry during the next decade. These numbers point out the tremendous burden which is being placed on the coal industry.

The problem is to supply the research scientists, trained engineers and technicians needed to improve production techniques and other coal-related problems. For this reason, on Thursday, I introduced the Coal Research Laboratory and Energy Fellowship Act of 1977.

The measure would authorize establishment of ten coal research laboratories in institutions of higher learning. These laboratories would be designated by the Administrator of the Energy Research and Development Administration with provisions for Federal funding for both construction and operation of the labs. The bill would provide 3,000 energy resource graduate fellowships for each of the next five years. The stipends would not exceed \$8,000 per year. The fellowships would be for graduate study and research in areas of applied science and engineering related to the production, conservation and utilization of fuels and energy.

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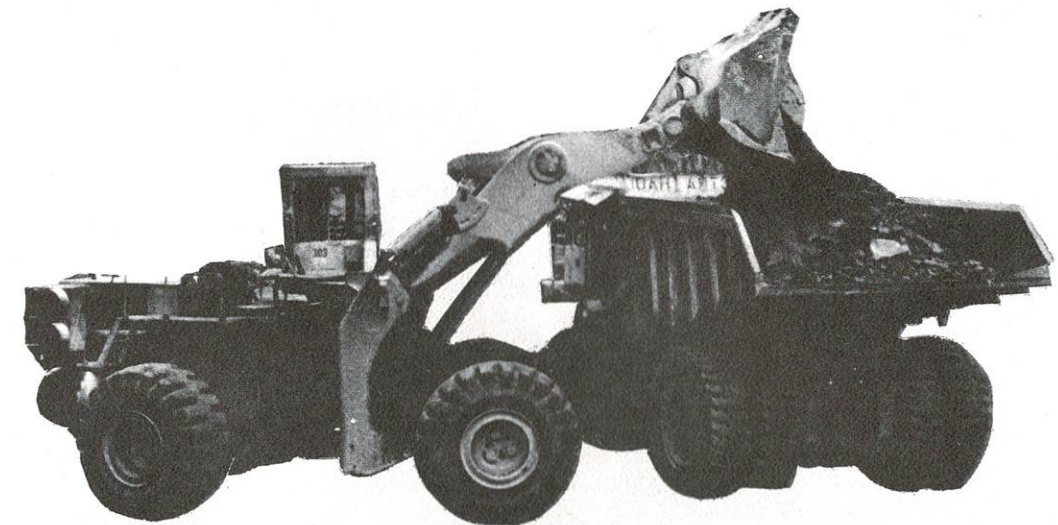


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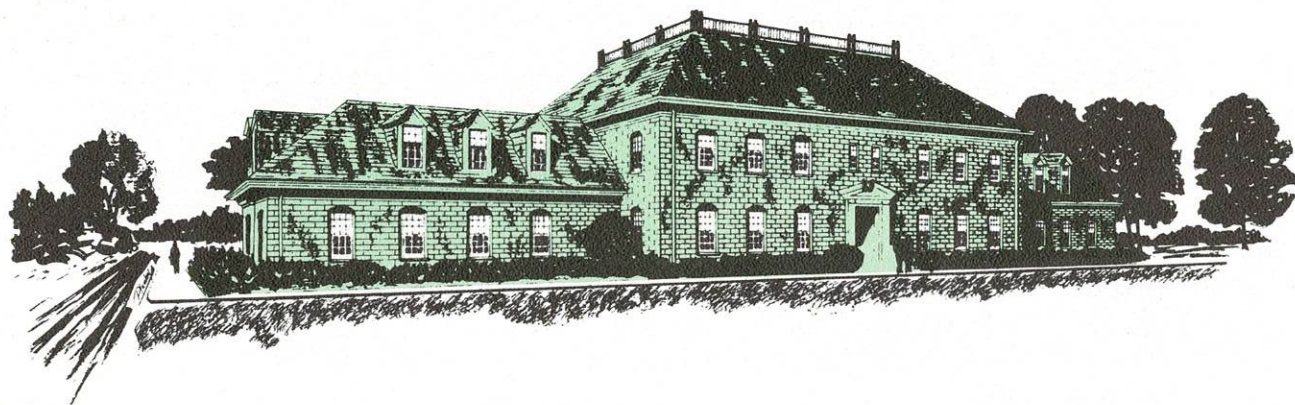
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