

JOB REPORT #2 DEMAG H-65

SPECIFICATIONS	
Total Operating Weight:	154,000 lbs.
Bucket Capacity:	5.2 - 6.5 cu. yds.
Engine:	CAT 3406
# of Hydraulic Pumps:	3
Crowd Force:	66,150 lbs.
Breakout Force:	71,660 lbs.
Fuel Consumption:	10.5 gallons per hour

When a large limestone quarry in central West Virginia needed a loading tool to perform several applications, Beckwith had the answer.

With the highly versatile DEMAG H-65 hydraulic excavator, operators were able to remove a large clay seam running diagonally through the pit. Once the clay was removed, and after blasting, the H-65 was able to gather the loose rock with ease and maneuverability.

The highly-reliable DEMAG H-65 has 10 factory-approved attachments, including a front shovel and a deep digging backhoe that will reach to a depth of 36' 9". For use in the quarry, the DEMAG H-65 was equipped with a 21' 4" boom, 9' 10" stick and a 5.2 cubic yard rock bucket, providing the capacity of

a larger machine without sacrificing the reach of a conventional backhoe. In addition to excavating, the DEMAG H-65 consistently demonstrated its high performance in the toughest applications by loading CAT 769C trucks in 2 minutes.

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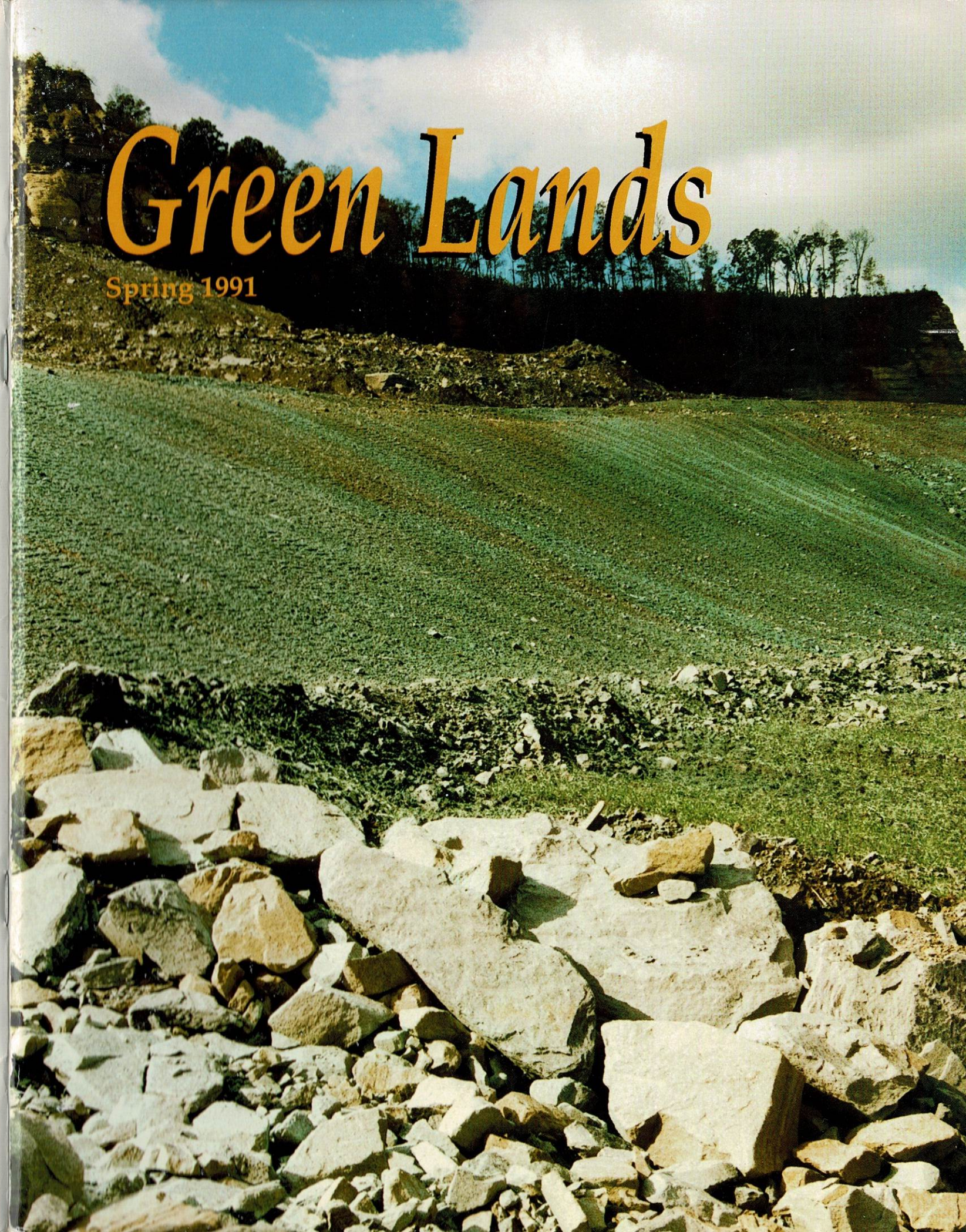
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Green Lands

Spring 1991





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Green Lands

is a quarterly publication of the
West Virginia Mining & Reclamation Association,
with offices at 1624 Kanawha Boulevard East
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(304) 346-5318



Our Cover

Logan Mingo Coal Co. led the parade of
honorees at the 1990 Reclamation Awards. Logan
Mingo received the 'Callaghan Award' as the top
overall operation in West Virginia. Our
cover story begins on page 20.

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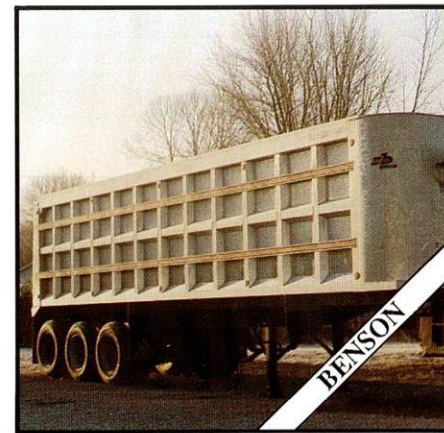
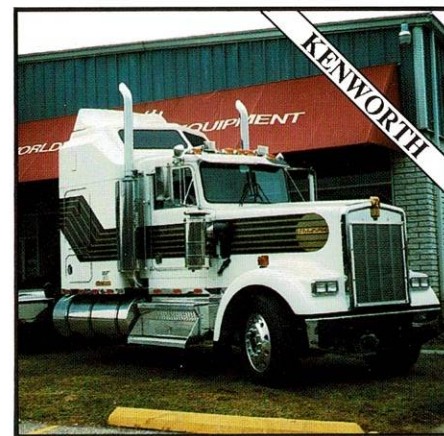
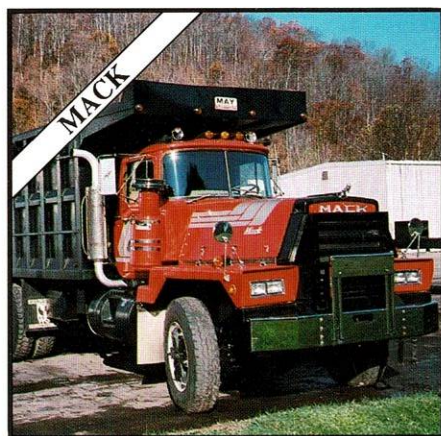
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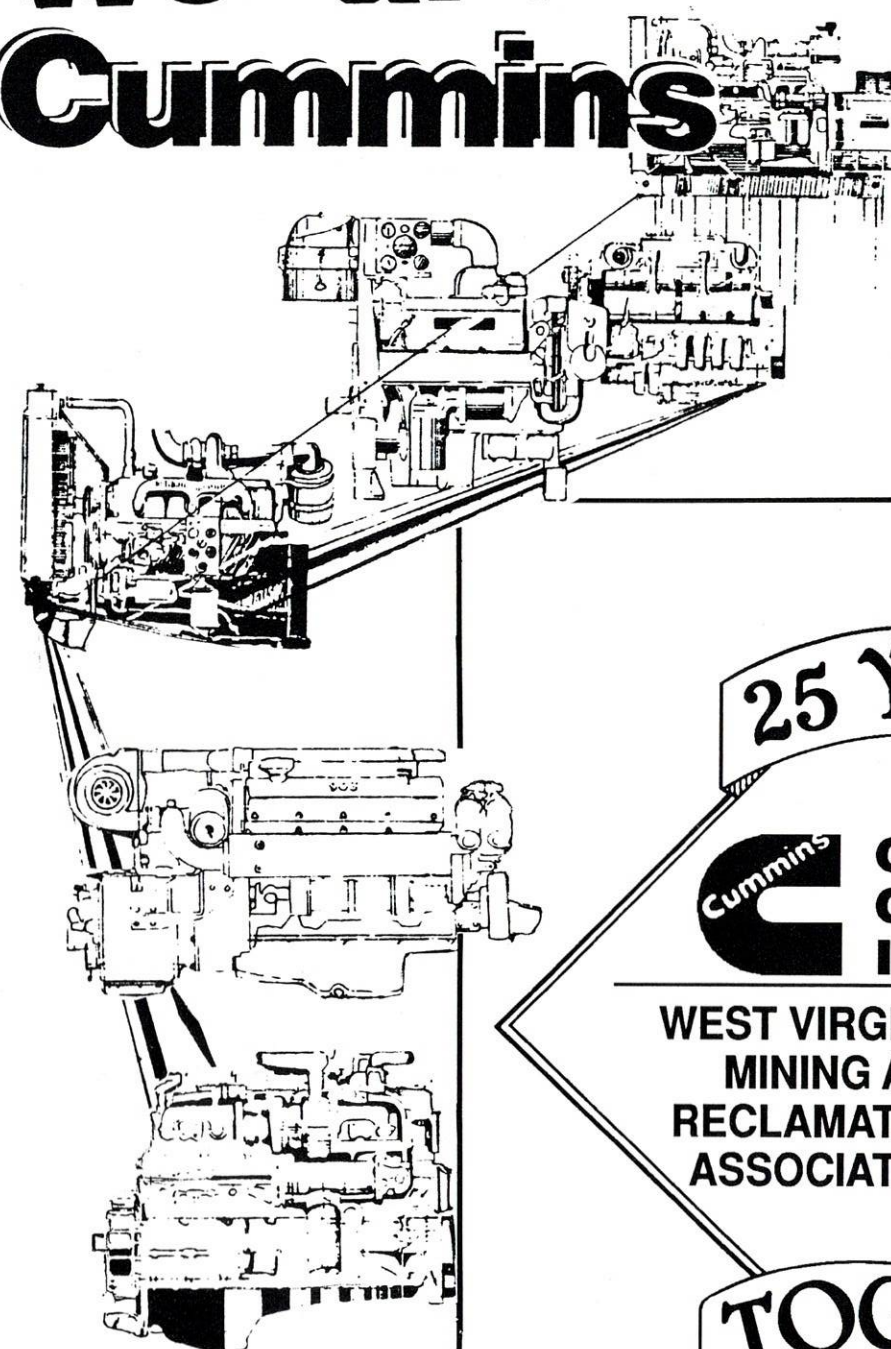


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How much a ton in '91?

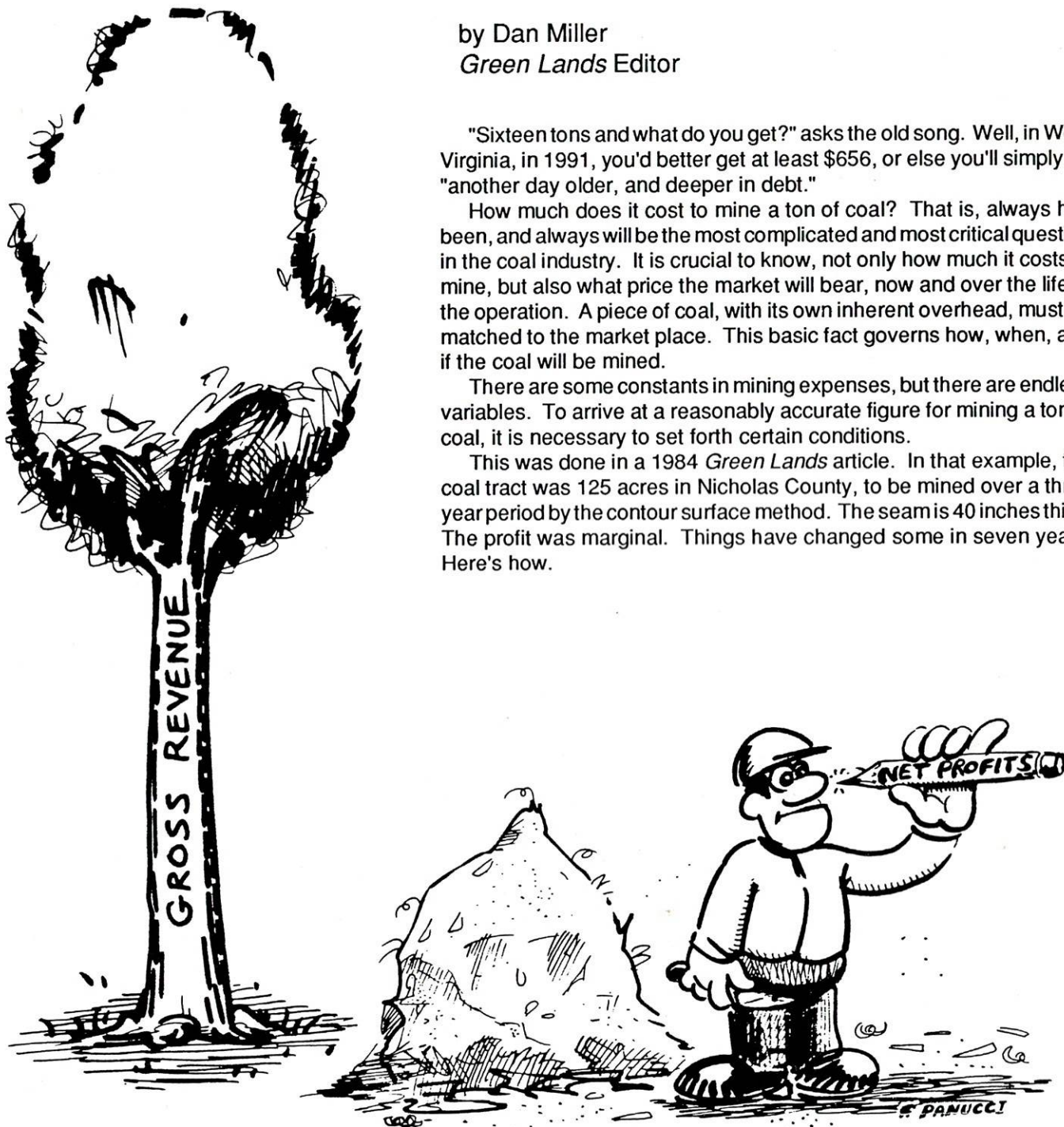
by Dan Miller
Green Lands Editor

"Sixteen tons and what do you get?" asks the old song. Well, in West Virginia, in 1991, you'd better get at least \$656, or else you'll simply be "another day older, and deeper in debt."

How much does it cost to mine a ton of coal? That is, always has been, and always will be the most complicated and most critical question in the coal industry. It is crucial to know, not only how much it costs to mine, but also what price the market will bear, now and over the life of the operation. A piece of coal, with its own inherent overhead, must be matched to the market place. This basic fact governs how, when, and if the coal will be mined.

There are some constants in mining expenses, but there are endless variables. To arrive at a reasonably accurate figure for mining a ton of coal, it is necessary to set forth certain conditions.

This was done in a 1984 *Green Lands* article. In that example, the coal tract was 125 acres in Nicholas County, to be mined over a three year period by the contour surface method. The seam is 40 inches thick. The profit was marginal. Things have changed some in seven years. Here's how.



Permitting

Hiring, equipment procurement, and permit application may all be done simultaneously, but the proper permits must be secured before any mining or construction can take place.

Coal operators cannot expect regulators to regulate them for free. Therefore, when the permit goes to the West Virginia Division of Energy, it must be accompanied by a filing fee of \$1,000, double what it was in 1984. This fee is not refundable in the event the permit is denied. The NPDES permit, under the jurisdiction of the West Virginia Department of Natural Resources, requires an additional \$500 fee, ten times the amount of seven years ago. Then there's the lands inquiry fee of \$150, up from \$100, to determine if the proposed site contains any unique historical, environmental, or geological qualities.

When a Surface Mine Application (SMA) number is assigned, the prospective operator must purchase legal advertising to announce his intention to mine coal, to alert any potential opposition to the permit. This ad must run on four separate occasions, each a week apart. In this case the cost will be \$230. This process must eventually be repeated three times, one for each phase of the bond release. Add in the cost of legal ads for intent to blast and the total advertising bill is \$1,020, resulting in a total permit application cost of \$2,670.

Bonding

The bond is that amount of money committed by the operator to insure proper and complete reclamation. If reclamation standards are not met, then the bond is forfeited, and the operator is unable to obtain another permit.

The bond is set by law at \$1,000 per acre, with a minimum of \$10,000 on any permit. For a permit of 125 acres, the bond would be \$125,000. Because a bond is more in the nature of collateral, as opposed to an actual cash outlay, the cost associated here would be approximately \$20 annually per \$1,000 of the total bond amount.

Following successful reclamation, the bond is released in three phases. Phase I comes at the end of the mining operation, when the entire area has been regraded to specifications. At this time, 60% of the original bond will be released. Phase II, involving an additional 25%, may be released two years after reclamation is completed, when the vegetation cover is well established. Phase III, the final 15% is held for an additional three years, a total of five years beyond the life of the operation, and in this case, eight years after the job has begun.

The cost of Phase I of the surety bond, \$125,000 for three years, would be \$7,500. Phase II, \$50,000 for two more years, would be \$2,000. Phase III, \$18,750 for three years, amounts to \$1,125. Thus, the total bonding cost would be \$10,625.

Engineering/Construction

The permit application is quite voluminous, and requires engineering expertise which is usually beyond the inhouse capability of the small company.

Surveying, maps, hydrological studies, and plans for haulroads and drainage systems will commonly cost about \$45,000 for an operation of this size and nature. Again, this is a front end cost, not recoverable in the event of permit denial.

The construction phase of the operation will entail two major projects. One is the drainage system, of which the primary component will be sediment ponds. Three ponds of average size, professionally designed to capture all runoff from a mining operation, will cost about \$75,000. That's a bargain compared to the cost of the haul road, which, like all other mine construction, must be carefully engineered.

The typical haul road in West Virginia, in just moderately steep terrain, will run about \$100 per foot. So, a road of only one mile will cost approximately \$528,000. This makes the total engineering and construction costs \$648,000. These are all expenses which are incurred before any coal production is accomplished.

Employment

A permit of 125 acres can be expected to yield about 75 acres of mineable coal. At 6,000 net tons per acre from a 40 inch seam, the projected total tonnage from this permit would be 450,000.

Setting a production goal of 15,000 ton per month, and allowing for startup, slow production as the permit plays out, and final reclamation, the projected job life of the operation will be about 36 months. Given current productivity figures, this calls for a work force of about 25 miners, plus two foreman, and two office workers.

The average West Virginia coal miner, based on 1990 figures, makes a weekly wage of \$807.73. This comes to a weekly payroll of \$20,193.25. Times 52, plus \$150,000 yearly for the clerks and foremen, and the annual payroll is \$1,200,049.

The cost of government

The following are cost per ton figures on payroll, taxes, fees, and other expenses imposed by law, and based on the hypothetical mining situation described earlier. Costs of meeting reclamation requirements are not included.

Federal black lung	.08
Workers' compensation	.62
Unemployment compensation (state and federal)	.05
FICA (social security)	.61
Permits and bonds	.04
Safety training	.02
Severance & franchise taxes	2.36
Property tax	.03
Fuel tax	.13
Abandoned mine lands (federal)	.35
Special reclamation (state)	.03
Bathhouse waiver	.11
	<u>\$4.43</u>



The cost of unionism

The following are cost per ton figures for those expenses unique to UMW signatory companies. Wages and health benefits are not included.

Pension benefits package	1.55
Uniform allowance	.03
	<u>\$1.58</u>

For the three year life of the operation, and naively allowing for no wage increase over that period, the basic employment cost will be \$3,600,147. This is, as all employers know, only the visible half of the iceberg.

Coal employers, even surface coal operators, pay 55¢ a ton into a federal black lung trust fund, \$247,500 over three years. Regular black lung payments, 1% of the payroll, adds another \$36,001.47.

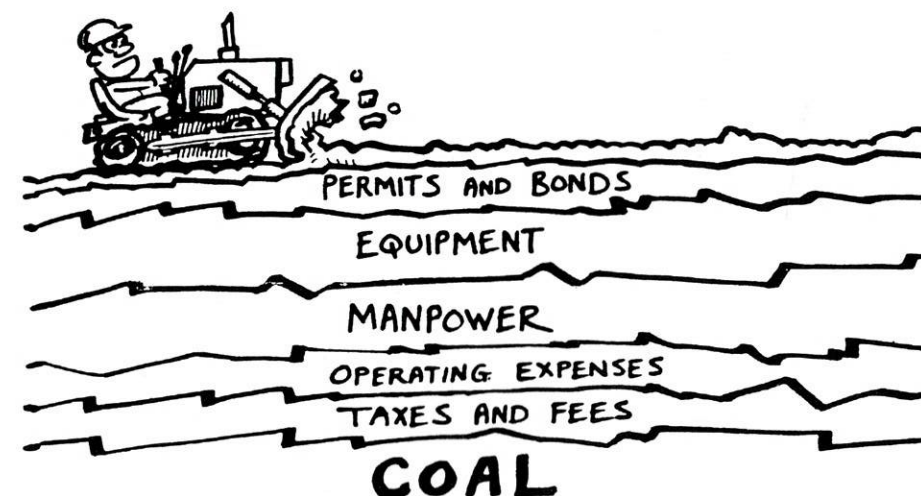
Workers' compensation is paid to the State at varying rates. The rate for new companies (less than five years in business) in the coal industry, is \$7.76 per \$100 of the payroll. This would amount to \$279,371.40 over three years.

Both the state and federal governments take a bite for unemployment compensation. The State gets an amount equal to 2.7% of the first \$8,000 of pay, per employee, per year. This would be \$18,792. The feds take the equivalent of .8% of the first \$7,000, per employee, or \$1,624 per year, \$4,872 over three years.

FICA, the federal social security tax, is 7.65% of each employee's salary. There is a ceiling on this, but it is raised every year, and generally exceeds the working person's income. For these 29 employees, the cost will be \$61,818.12, times three comes to \$275,411.24 for the life of the operation.

The Mine Safety and Health Administration (MSHA) requires employers to furnish a bathhouse, or else payment of a bathhouse waiver. Small companies, particularly operating in a given area for only three years, will find it more convenient and economical to pay the bathhouse waiver of \$2.50 per day, per employee. That's another \$48,750.

Training is required for all employees in surface mining procedure. Annual refresher training for this work



Costs per clean ton

Permits & Bonding	.03
Engineering	.10
Construction	1.34
Basic Payroll	8.00
Government imposed payroll expenses	1.51
Union imposed payroll expenses	1.58
Health care	1.99
Equipment	14.90
Tipple	2.50
Hauling	2.00
Wheelage	.32
Revegetation	.17
Royalties	3.28
Taxes and Fees	<u>2.90</u>
	<u>\$40.62</u>

force will cost \$7,500. Training for the required Emergency Medical Technician (EMT) will cost \$3,500.

Additionally, a labor bond must be posted with the Labor Commissioner of West Virginia, to insure payments of wages and benefits in the event of shutdown. The bond amounts to four weeks of payroll, plus 15%. At current rates, this bond would cost about \$6,370.

There are many costs to bear beyond those imposed by the government. Standard major medical insurance coverage, for instance, will cost around \$850 per month, per employee. In this case, that expense would be \$24,650 per month, \$295,800 per year, \$887,400 for three years worth. Practicality dictates that each employee undergo a thorough examination prior to employment, to identify pre-existing conditions. This would amount to about \$8,700.

The UMW extracts \$4.01 per hour for its pension and benefits package. Over three years, with 25 miners, that's 174,330 hours, and an expense of \$699,063.30. Then there's the uni-

form allowance. This amounts to \$180 per year, per employee, or \$13,500 for three years.

Thus the payroll is increased by almost two-thirds, considering all the auxiliary costs of putting a miner to work. To be precise, the payroll for this operation over three years will be \$3,600,147, and the extra costs amount to \$1,636,587.30 for a total employment cost of \$5,889,378.40.

Equipment

The variety of equipment spreads and methods of obtaining, financing, and maintaining equipment is endless. It is, easily, the biggest single cost category of the mining operation.

The average surface mine will involve bulldozers, loaders, drills, haulage trucks, off-highway trucks, graders, and other trucks specialized for such functions as explosives handling, water pumping and spreading, maintenance, seeding, welding, emergency transport, and others.

Site, market, and company considerations dictate the particular combi-

nation of these pieces and how they are utilized. There is no average.

The best measure of equipment cost is accepted industry cost-per-ton standards for basic surface mine functions, and deleting from these, employment costs already covered here. This allows approximate estimates on the cost of operating and maintaining the necessary equipment over the three year life of the job.

The biggest single expense is that of exposing the coal, that is, removing and storing, or disposing of overburden. Mining with a 10:1 overburden-to-coal ratio, an average-to-good figure in West Virginia, this expense will amount to \$5,625,000.

Loading the coal for transport to the tipple will be another \$430,000. Haul road maintenance will come to \$215,000.

Final regrading of the slopes, and preparation for revegetation, will cost \$435,000. These four basic functions entail a total expense of \$6,705,000, which represents equipment costs on this operation.



At a near breakeven price of \$41 per ton, here's where the tonnage goes.

To pay for this ----- Mine this many tons

Permits	\$ 2,670.00	65
Bonding	10,625.00	260
Engineering	45,000.00	1,098
Construction	603,000.00	14,708
Payroll	3,600,231.40	87,811
Government imposed payroll expenses	680,568.11	16,600
Union imposed payroll expenses	712,563.30	17,380
Health care	896,100.00	21,857
Overburden removal	5,625,000.00	137,196
Coal loading	430,000.00	10,488
Haul road maintenance	215,000.00	5,244
Regrading	435,000.00	10,610
Tipple	1,125,000.00	27,440
Hauling	900,000	21,952
Wheelage	140,625.00	3,430
Revegetation	75,000.00	1,830
Royalties	1,476,000.00	36,000
Property tax	12,484.00	305
Fuel tax	60,187.60	1,468
Severance tax	922,500.00	22,500
Business Franchise Tax	138,375.00	3,375
Abandoned Mine Lands Fund	157,500.00	3,842
Special Reclamation Fund	13,500.00	330

Other expenses

Assuming the company does not own its own tipple, it will encounter a cost of \$2 per raw ton for this function. The operator can expect a loss of at least 20% of raw tonnage in the cleaning process. To net 450,000 tons of clean coal, it will be necessary to haul and clean 562,500 raw tons. Thus, the tipple cost will be \$1,125,000.

The standard cost for hauling is \$1 per ton for the first mile, and 10¢ per ton for each additional mile. Assuming a seven mile haul, the cost would be \$1.60 per raw ton, or \$900,000.

Another common operating cost is "wheelage," that is, hauling coal over the property of an adjacent landowner. A common fee would be 25¢ a ton, a total of \$140,625.

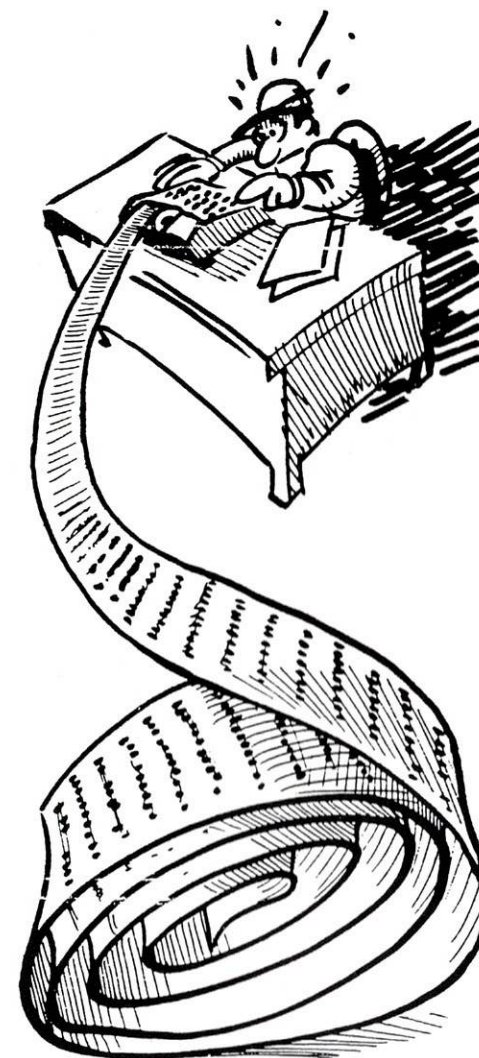
The actual revegetation of reclaimed land is another function likely to be contracted by the small company. At approximately \$600 per acre, this will cost \$75,000.

In most cases, the coal operator is mining on private property, and therefore must pay a royalty to the mineral owner. This party gets either a price per ton rate, or more likely, a negotiated percentage of the sale price, typically 8%. Assuming an optimistic sale break-even price of \$41.00 a ton, the royalty will be \$1,476,000.

Taxes and Fees

Government, in addition to playing a leading role in employment costs, has several direct taxes for the coal operator. Basic to these is the coal severance tax, which squeezes the industry for 5% of the sale price, which comes to \$922,500 in this case. A business franchise tax takes another 0.75%, and another \$138,375.

Property taxes will take into account the value of the mineral. In this situation, the property tax in Nicholas County will amount to \$12,484.



A little variance

The hypothetical mining situation set forth here required numerous assumptions. It should be emphasized that this would be a medium size operation in West Virginia. Even so, it is clear that any adjustment in costs would ricochet through three years and 450,000 tons with startling effects.

For example, the bonding procedure described here is a best case scenario. If this were truly a new operator, without an established industry reputation, it is unlikely that he would be able to obtain bonding at any price, and would therefore have to bear the cost of tying up \$125,000 in cash, for eight years.

This operation was calculated to need 25 hourly employees. The addition of even one hourly worker will add over \$200,000 to the overhead. A wage increase of just 50¢ an hour adds more than \$100,000 to employment costs.

Suppose the social security system is infused with an additional 1% in FICA payments. That's another \$36,000. When West Virginia increased its Special Reclamation tax by just 2¢ a ton, it became a \$90,000 liability to this operation.

If the operator runs into a little item called "mitigation" in constructing his drainage system, he will also encounter an additional cost of \$40,000 or more, compliments of the WV-DNR.

Wheelage, the rate paid for hauling coal across someone else's property, was figured at 25¢ a ton. If the route happens to cross the grounds of two property owners, that's another 25¢ a ton, and that's another \$140,625. By the same token, add another five miles to the highway haul, and you must add 50 a ton, or \$281,250 to the overhead.

Haul road distances vary greatly, and the operator doesn't have a great deal of control over it. If this operator happened to need an extra mile of haul road, he would also need an extra \$725,000 to build and maintain it.

And how about royalties? The rate in this situation was 8%. If it were 9%, payments would increase by \$184,500.

The most critical factor in operating expense is the overburden ratio. In the operation described, the ratio is 10:1. If that were 12:1, mining costs would go up by about \$1,125,000.

A little change goes a long way, and so would a little relief.

The fuel tax rate is 5.35¢ per gallon. It takes a little over two gallons of fuel to mine a ton of raw coal. This results in a three year outlay of \$60,187.60.

The federal Office of Surface Mining takes 35¢ a ton for the reclamation of abandoned mine lands. That's

\$157,500. West Virginia also takes 3¢ a ton for essentially the same purpose, a total of \$13,500.

The total direct taxes and fees on this mining operation will amount to \$1,304,546.50 over three years, around \$2.90 a ton. If that doesn't seem like much, consider that this

much government revenue is generated from one medium size operation. Multiplied by West Virginia's total 1990 tonnage, these figures would amount to nearly half a billion dollars for that year. These are only direct taxes and fees, exclusive of various government imposed payroll expenses.

Summary

The total overhead for this hypothetical mining operation comes to \$18,276,845. Even this figure assumes no major problems in obtaining a permit, no prolonged work stoppages, average weather conditions, no unpleasant surprises with the coal seam, or any of the other myriad problems which can plague any operation on a day-to-day basis.

With this overhead, the break-even price for mining a ton of coal from the hypothetical mine is about \$40.62. This does not include the charges for transport to the final destination, which

could vary as widely as an in-state power plant to a Japanese steel mill. Selling the coal at the tipples will necessarily hold down the sale price.

Building in a standard profit margin for the operator will push the necessary sale price well past the \$41 mark, and beyond the operator's ability to market it.

The only feasible means of mining this tract of coal is to cut costs, and drastically. Larger companies may utilize inhouse expertise to trim engineering and construction, and perhaps, equipment costs.

More efficient ratios of overburden to coal, and raw tons to clean tons, as well as better deals on such items as tipping, hauling, wheelage, and royalties would also improve the situation.

But the bottom line here is that this coal tract, even with no markedly adverse conditions, can not realistically be mined profitably by the small operator.

And that's why we don't have very many small operators in West Virginia today.

Here's where the money goes . . .

Income for 450,000 clean tons at \$41.00 per ton	\$18,450,000.00
Permits, bonding, engineering, construction	<u>661,295.00</u>
	\$17,788,705.00
Payroll	<u>- 3,600,147.00</u>
	\$14,188,558.00
Other employment costs	<u>- 2,289,231.40</u>
	\$11,899,326.60
Equipment	<u>- 6,705,000.00</u>
	\$ 5,194,326.60
Tipples, hauling, wheelage, revegetation	<u>- 2,240,625.00</u>
	\$ 2,953,701.60
Royalties	<u>- 1,476,000.00</u>
	\$ 1,477,701.60
Taxes & Fees	<u>- 1,304,546.60</u>
Net profit	\$ 173,155.00

Be a coal baron for fun and profit

Our hypothetical operator, aiming at the breakeven point for more than three years of hard work, worry, and financial commitment, made it with room to spare. If he has magically found someone willing to pay \$41.00 per ton at the tipples, he has enjoyed an income of \$18,450,000. At the same time, he has managed to hold expenses down to only \$18,276,845, leaving him a tidy profit of \$173,155, a little more than he pays one of his foremen over the same three years, part of the reward that comes with the prestige and publicity of this unique profession.

To apply, contact the West Virginia Division of Energy, Charleston, West Virginia. While you're at it, also contact the Office of Surface Mining, the West Virginia Department of Employment Security, the West Virginia Workers' Compensation Fund, the West Virginia Department of Tax and Revenue, the U.S. Social Security Administration, the U.S. Department of Labor, the Internal Revenue Service, and several other agencies to be named later.



Crown Hill Equipment, Inc.

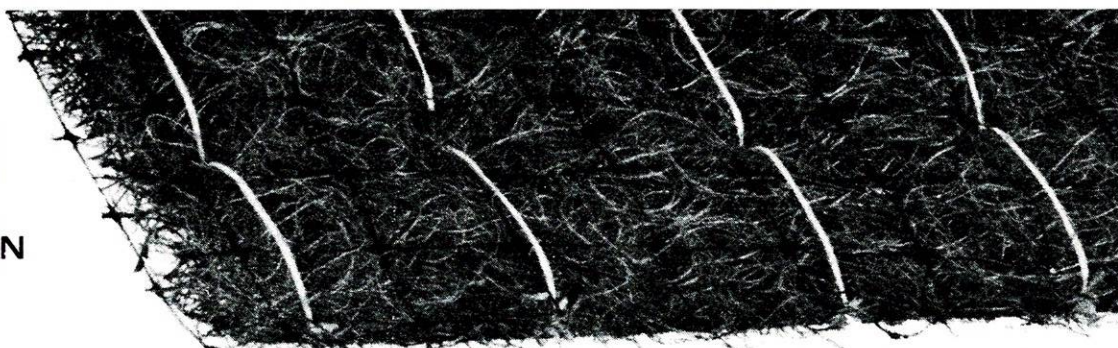
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- Exchange final drives for D9H S/N/ range 90V and up
- Exchange D9H - 19K "U" blade
- Rebuilt D9H push arms

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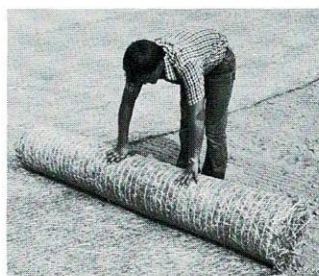


Shown
Actual Size

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North American Green offers a variety of Erosion Control Blankets to suit a variety of situations:

Just Roll It On



Starting at the top of the slope to be covered just unroll the Blanket. The Blanket should never be stretched so that contact with the soil can be maintained. Follow the simple instructions included with each roll.

Staple It Down



As you unroll the Blanket, staple it firmly to the ground using North American Green Surelock. Generally one staple per square yard will be sufficient. Under adverse conditions more staples might be required. Staple patterns are illustrated in the installation instructions.

Let Nature Do The Rest



North American Green Erosion Control Blankets create an ideal environment for seed to germinate. Because the Blankets are so well constructed, they help prevent the loss of moisture through evaporation, yet because the Blankets are porous, the ground will accept additional moisture through rainfall.

North American Green Products

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S150	Straw Blanket for heavy runoffs 3:1
SC150	Straw/Coconut Fiber Blanket for heavy runoff 2:1
SCC225	Straw/Coconut Fiber Blanket with seed for heavy runoff 2:1

C125

100% Coconut Fiber Blanket for extreme conditions and ditches.

P-300

100% Nylon Permanent Ditch Liner

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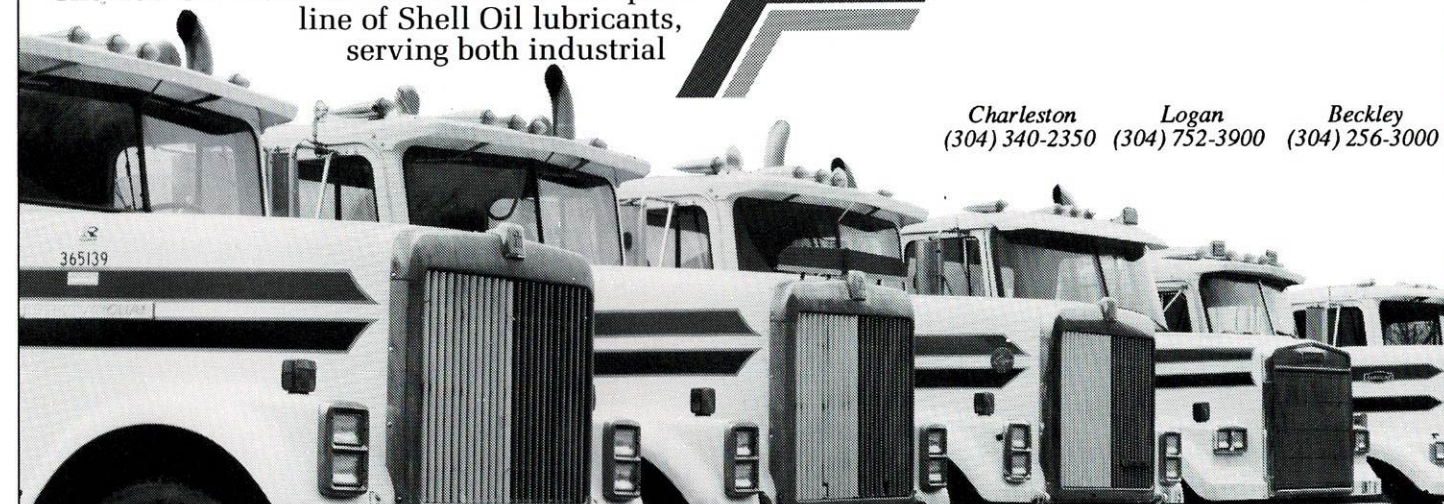
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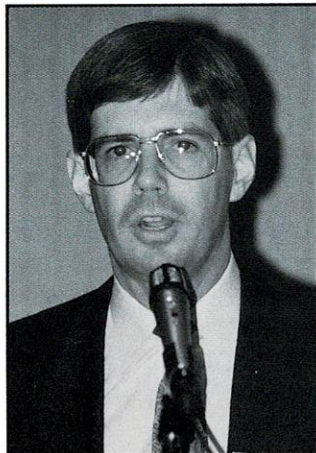
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Woody Wayland
WV-DoE Commissioner



Ken Woodring
WVMRA Chairman



Bart Lay, Jr.
WV-DoE Health & Safety



Steve Keen
WV-DoE Permitting

First 'coal' appearance for Commissioner Wayland

18th Symposium draws 750 plus

Once again, the "most informative two days in the mining industry" drew a record crowd, as more than 750 individuals gathered in Charleston January 9-11 for the 18th Annual West Virginia Mining Symposium.

A key element to this year's session was the presence of Woody Wayland, the new commissioner of the West Virginia Division of Energy.

Wayland, making his first formal appearance before a coal industry group, put some distance between himself and his agency's controversial history. "The people I feel sorry for are the legislators. They are the ones who have to wrestle with the issues. Our job is to carry out their decision."

The Commissioner sounded a cautionary note, emphasizing that "regulations and environmental concerns are not going to get any easier. In fact," Wayland said, "you will probably look back in five years and say this was the easy time."

The Symposium kicked off Wednesday afternoon with separate sessions on anhydrous ammonia and taxes, insurance and workers' compensation.

On Thursday morning, Association Chairman Ken Woodring officially welcomed a packed house to the first general session, which featured a review of Clean Air Act revisions, coalbed methane, solid waste disposal, extended cut miners, and coal trucking regulation.

Following the Mountaineer Guardian Luncheon, the program resumed with a valley fill/durable rock fill panel, followed by a legislative preview. In the evening, the Association hosted legislative members and staff in its traditional reception.

Friday morning's final technical session included presentations on remining, sewage sludge revegetation, and reclamation bonds.

Key people from DoE were on hand at the final session Friday morning for a status report and a question and answer session.

The 18th Symposium closed with the annual Reclamation Awards Luncheon, where DoE honored the outstanding reclamation achievements of 1990 (see page 20).

Association President Ben Greene commented on the record crowd. "Symposium attendance seems to grow each year. It's very evident that there is a great need for this type of event, and it's equally evident that the interest is there on the part of industry. It's a great opportunity to exchange ideas and information, and to get a feel for what is current and what is coming."

"There will always be timely topics, and we've been fortunate enough to have expert speakers to address those issues. I don't know how much bigger we can get with this program, but we'll certainly keep going."

Mountaineer Guardian Award Winners

Sixty-five separate mining operations were recognized at the Mountaineer Guardian Safety Awards Luncheon, during the 18th Annual West Virginia Mining Symposium. These operations were responsible for a total of 351.5 million tons of coal without a fatality.

Bart Lay, Jr., director of the Health, Safety & Training Division of the West Virginia Division of Energy, was on hand to make the presentations.

The Mountaineer Guardian Award program is sponsored jointly by the Association and DoE. It recognizes mining and prep plant operations for achieving specified

tonnage goals, based on employment, without a fatal accident.

According to WVMRA Vice President Bill Raney, this year's award recipients have mined two years worth of fatal free coal. "More than 350 million tons without a fatality is, by far, a record achievement for this program. The number of recipients and the tonnage they achieved clearly demonstrates that coal can be mined safely, and that a fatal free year for West Virginia coal is distinctly possible. We are extremely proud of these people and of this record."

Company

Appalachian Mining, Inc.
Arch of West Virginia, Inc.
Arch of West Virginia, Inc.
Barrenshe Coal Co., Inc.
Bentley Coal Co.
Bentley Coal Co.
Bentley Coal Co.
Birchfield Mining, Inc.
Buffalo Coal Co.

Cannelton Industries, Inc.
Cherry River Coal & Coke Co.
Concord Coal Corp./Logan

Airport Contractors
Consolidation Coal Co.
Consolidation Coal Co.
Consolidation Coal Co.
Consolidation Coal Co.
Consolidation Coal Co.
Consolidation Coal Co.
Consolidation Coal Co.
Consolidation Coal Co.
D & L Coal Co.
Dal-Tex Coal Corp./Old

Hickory Coal Co.
Davidson Mining, Inc.
E & A Coal Co., Inc.
Elkay Mining Co.
Elk Run Coal Co.
Elk Run Coal Co.
Elk Run Coal Co.
Elk Run Coal Co.
Elk Run Coal Co.
F. & M. Coal Co.
Hansford Smokeless Collieries
High Power Energy

Mine

Fayette Surface
Ruffner Surface
Wylo Surface
No. 1
Audra No. 1
Flatbush No. 1
Randolph
No. 1
Grant, Preston,
Tucker
Mine No. 130
Nicholas Surface

Logan Surface
Amonate No. 31
Rowland No. 9
Osage No. 3
Humphrey No. 7
Arkwright No. 1
Shoemaker
Ireland
Blacksville No. 2
No. 1 Surface

Rockhouse
No. 1
No. 4
No. 7A
Chess Prep Plant
Black Castle Surface
Castle
Bishop
Black Knight
Preston Surface
Hansford No. 4
Nicholas

Company

Hobet Mining, Inc.
Hobet Mining, Inc.
Hobet Mining, Inc.
Island Creek Coal Co.
Kanawha Mining Co., Inc.
Lady H Coal Co.
Lexie Coal Co.
Long Branch Energy
Long Branch Energy
Mohigan Mining Co.
Mon Valley Mining Co.
Old Ben Coal Co.
Peabody Coal Co.
Peabody Coal Co.
Peabody Coal Co.
Peabody Coal Co.
Peabody/Eastern

Associated Coal Corp.
Peabody/Eastern
Associated Coal Corp.
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Associated Coal Corp.
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Associated Coal Corp.
Peabody/Eastern
Associated Coal Corp.
Phoenix Resources/
Tanglewood Energy
Preston Energy, Inc.
Red Warrior Coal Co.
Stoney Coal Co.
Tommy Creek Coal Co.
Western Mingo
Coal Co./Marrowbone
Westmoreland Coal Co.
White Flame Energy, Inc.
White Flame Energy, Inc.

Mine

No. 23 Prep Plant
No. 21 Surface
No. 12 Prep Plant
North Branch No. 1
Kanawha
No. 7
No. 8-A
No. 10
No. 5
Flaggy Meadow
Rosedale Dock
No. 20
Big Mountain No. 1
Big Mountain No. 8
Robin Hood No. 9
Robin Hood Prep Plant

Colony Bay
Harris No. 2
Kopperston No. 1
Kopperston No. 2
Lightfoot No. 1
Stone Run No. 6
Big Joe
Kanawha
No. 7
Tommy Creek No. 1
No. 1
Hampton No. 4
Mingo No. 2
White Flame No. 1

Field of Dreams.

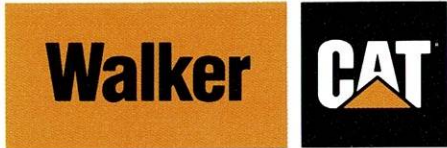


Sometimes dreams do come true. Just ask the kids of Ben Creek, West Virginia. This small community in Mingo County experienced first hand how businesses can give back to the community. • It all started with an old abandoned field, which the folks at Walker thought would make a great basketball court. It didn't take the Walker crew long to recruit some help and break ground. A local company donated the land. Mountain Enterprises provided paving. And Walker donated



equipment, manpower and materials. • The season opener was a success. A nice crowd was on hand and West Virginia University basketball coach, Gale Catlett, conducted a free basketball clinic for the kids. • Making a difference for the community. That's what it's all about. And that's the Walker Difference.

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The **Walker** Difference

1990 Reclamation Awards

Fourteen West Virginia companies were recognized for excellence in reclamation at the closing luncheon of the 18th Annual West Virginia Mining Symposium.

Sponsored jointly by the West Virginia Division of Energy and the West Virginia Mining & Reclamation Association, the Reclamation Awards are presented annually to those companies judged to have done the best work in reclaiming mined land. To be considered for the award, a company must be nominated by its local DoE inspector.

"This is one of our more pleasant duties throughout the course of the year," said Association President Ben Greene. "Most companies in our state are in compliance with basic requirements of the law, and many do truly outstanding

work. This program attempts to recognize the best of that group each year, and our members seem to take a great deal of pride in the achievement."

The top award this year went to Mingo Logan Coal Co., which received the "David C. Callaghan" Award, named for the former director of the State Department of Natural Resources.

"Mingo Logan is an excellent example of what the Reclamation Awards are all about," said Greene. "They have gone far beyond the call of duty in all phases of their operation. The 'Callaghan' award is a kind of 'best of show' recognition, and Mingo Logan is certainly deserving of that honor."

Reclamation Award Nominees

Company	County	Company	County
Ackley Houston Corp.	Fayette	K & B Coal Co.	Nicholas
Allegheny Mining Corp.	Grant	Lady H Coal Co.	Nicholas
Anderson & Anderson Contractors, Inc.	Mercer	Land Use Corp.	Nicholas
Amerikohl Mining, Inc.	Barbour	Laurita Energy Corp	Monongalia
Battle Ridge Co.	Boone	Lillybrook Coal Co.	Mercer
Bay Star Coal Co.	Mercer	Marrowbone Development Co. dba	
Bethlehem Mines Corp.	Upshur	Western Mingo Coal Co.	Mingo
Buffalo Coal Co.	Grant	M & H Coal Co.	Logan
Buffalo Coal Co.	Tucker	Mingo Logan Coal Co.	Mingo
Business Resources, Inc.	Fayette	NuEast Mining Corp.	Boone
Chesnut Ridge Coal Corp.	Mineral	PCR Joint Venture	Fayette
Coaltrain Corp.	Taylor	Peerless Fuels, Inc.	Nicholas
Cyprus Kanawha Corp.	Fayette	Philippi Development Co.	Barbour
Donaldson Mine Co.	Kanawha	Pioneer Fuel Corp.	Raleigh
Fairfax Trucking Co.	Randolph	Robinson Phillips Coal Co.	McDowell
Five Brothers Construction Co.	Monongalia	Spring Ridge Coal Co.	Webster
Freeman Branch Mining	McDowell	Stoney Coal Co.	Raleigh
Grafton Coal Co.	Braxton	Southern Minerals, Inc.	Mercer
John Brown Harris, Inc.	Greenbrier	Terry Eagle Coal Co.	Nicholas
J. T. Allen Co.	Harrison	Vaco Enterprises	McDowell
Kent Coal Co.	Greenbrier	W-P Coal Co.	Logan



In Mingo County, for overall excellence in all phases of mining and reclamation. The company's planning, execution, and commitment to excellence is evident throughout the operation. Utilizing a combination of box cut, area, and contour mining methods, the company successfully mined multiple seams under varying conditions, and carried out its reclamation responsibilities in a manner which resulted in a postmining condition which is superior to the premining area. Mingo Logan's achievement on this site reflects the highest standards of modern mining and reclamation practices.



David C. Callaghan Award
Mingo Logan Coal Company

(l-r) Secretary Ranson, Kenny Nicewonder of **Mingo Logan Coal**, Inspector Harold Ward, Raymond Maynard, Markus Ladd, both of Mingo Logan, WV-DoE Commissioner Woody Wayland, Don Nicewonder, David Fletcher, both of Mingo Logan.



In Tucker County, for the construction of a 40 acre wetlands project, which serves as a "textbook perfect" example of waterfowl habitat improvement.

Wetlands West Virginia Award

**Buffalo Coal
Company**



Representing **Buffalo Coal** are (l-r) Jerry Duckett, Buz Gosnell, John Geroski, Carmen DelSignore, Steve Shaffer, Denny Dolechek, and Don Cussins. Making the presentation is West Virginia DU State Chairman Bob Burnworth.



For the successful completion of the "Muddy Creek Project," in Preston County, and the "Omar Refuse Project," in Logan County, which reflect Pioneer's outstanding record of the timely, efficient, cost effective, and successful restoration of mined land under the AML program.

AML Award

**Pioneer
Construction**



(l-r) Inspector Tom Morris, Secretary Ranson, AML Northern Supervisor Dave Broschart, Inspector Dave Smith, Jay Wardwell, Ann Wardwell, Mike Wardwell, all of **Pioneer Construction**, Commissioner Wayland.



In Grant County, for careful planning and execution of sediment control in carrying out the successful reclamation of a mining operation upstream from the Mt. Storm Public Service District public water supply.

Allegheny Mining Corporation



(l-r) Lawrence Streets of **Allegheny Mining**, Commerce Secretary John Ranson, DoE Commissioner Woody Wayland, Inspector Craig See.



In Mercer County, for exemplary sediment control through sediment pond construction, stream channel diversion, and the use of a temporary valley fill in maintaining an environmentally sound underground operation.

Bay Star Coal Company



(l-r) Secretary Ranson, Inspector William Thomason, Edward Asbury, Herbert Asbury, both of **Bay Star Coal**, Commissioner Wayland.



In Fayette County, for the reclamation of over 180 acres of prior disturbance, the elimination of 30,000 lineal feet of existing highwall, the complete renovation of a river loadout facility, and for exemplary construction of a drainage control system for more than five miles of upgraded haulageway.

Cyprus Kanawha Corporation



(l-r) Secretary Ranson, Dave Cobb of **Cyprus Kanawha**, Commissioner Wayland.



In Randolph County, for the enhancement of a natural area through the successful establishment of a variety of forage shrubs, the creation of a miniature wetland, and for the overall quality of wildlife habitat development.

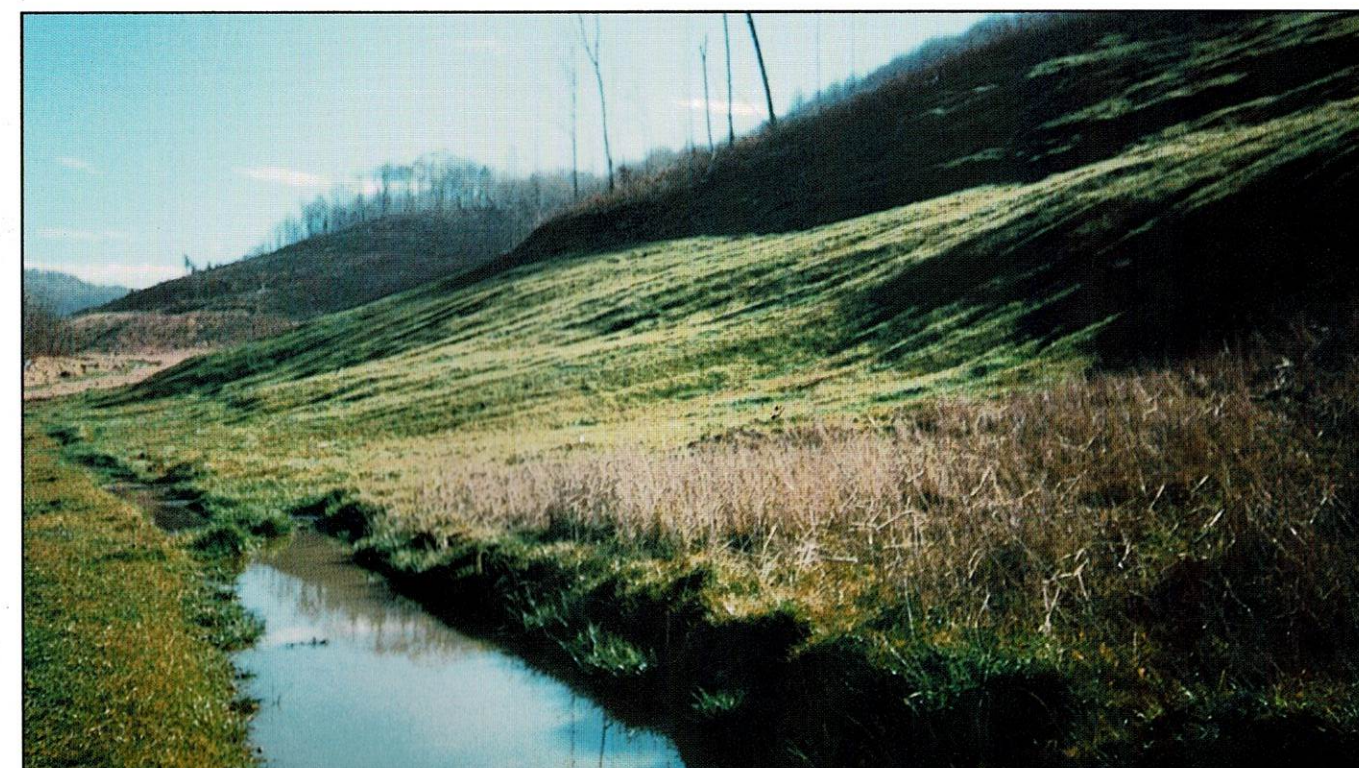
Fairfax Trucking Company



(l-r) Secretary Ranson, Chris Polino of **Fairfax Trucking**, Commissioner Wayland.



In Monongalia County, for exemplary work in returning the mined area to its natural original contour, and for excellent revegetation in maintaining pasture and meadowland use.



In Nicholas County, for going beyond requirements of the law in eliminating more than 5,000 feet of a thirty year old highwall while maintaining excellent water quality and outstanding reclamation on its remining operation.

Five Brothers Construction Company, Inc.



(l-r) Secretary Ranson, Inspector Ed Dean, Jack Triplett, Randy Triplett, both of **Five Brothers Construction**, Commissioner Wayland.



(l-r) Secretary Ranson, Inspector Russ Keaton, Lewis Crawford, Dave Czarnowski, both of **Burning Rock Energy**, Commissioner Wayland.

Lady H Coal Company

Burning Rock Energy Contractor



In Nicholas County, for conscientious efforts and outstanding results in drainage control, sediment structures and innovative engineering techniques in establishing a postmining wildlife area, complete with a large permanent impoundment that is presently home to deer, turkey, doves, and rabbits.

Land Use Corporation

Maplewood Mining, Inc. Contractor



(l-r) Inspector Bill Little, Tim Underwood of **Maplewood Mining**, Commissioner Wayland.



In Mingo County, for the elimination of all highwall, the maintenance of water quality, general reclamation through careful regrading and the successful establishment of diverse vegetation on two completed underground operations.



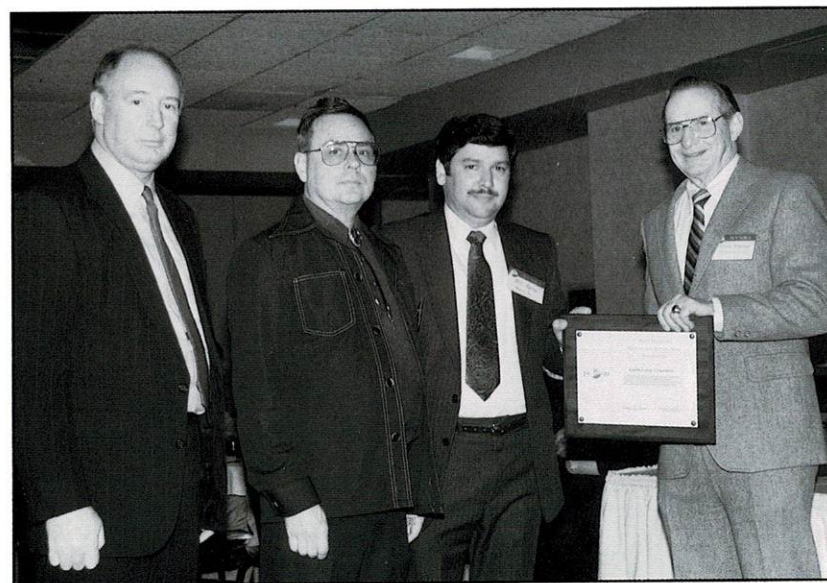
(l-r) Secretary Ranson, Doug McKenzie, Fred Lovins, both of **Marrowbone Development**, Commissioner Wayland, Inspector L.T. Pack.

Marrowbone Development Company dba Western Mingo Coal Company



In Monongalia County, for the proficient and expedient handling of topsoil and overburden, and for prompt and thorough revegetation, which resulted in the timely completion of the mining and reclamation process with no adverse environmental effects.

Laurita Energy Corporation



(l-r) Secretary Ranson, Inspector Ed Dean, Bill Kerns of Laurita Energy, Commissioner Wayland.



In Logan County, for the extraordinary cleanup of scattered coal refuse, the elimination and reclamation of several unsightly disposal areas, and the complete renovation of preparation facilities, all resulting in major water quality and aesthetic enhancement.

M & H Coal Company



(l-r) Secretary Ranson, Inspector Bob Fala, Dino Paoletti of M & H Coal, Commissioner Wayland.



In Nicholas County, for the outstanding concurrent reclamation of an active refuse pile, while successfully correcting drainage problems associated with an old existing pile, and for the efficient revegetation of the total areas.

Terry Eagle Coal Company



(l-r) Secretary Ranson, Flavia Corbitt of Terry Eagle Coal, Commissioner Wayland, Monte Hieb of Terry Eagle.



In McDowell County, for outstanding use of mountaintop removal and contour mining techniques in extremely steep terrain, creating a rolling, useable plateau area, successfully transforming the mine site to a most desirable wildlife habitat.



(l-r) Secretary Ranson, Inspector Arnold Fortner, Eric Charles of VACO Enterprises, Commissioner Wayland.

VACO Enterprises, Inc.

DEMAG MACHINE LOCATIONS

West Virginia

BECKWITH AND DEMAG LOCATIONS

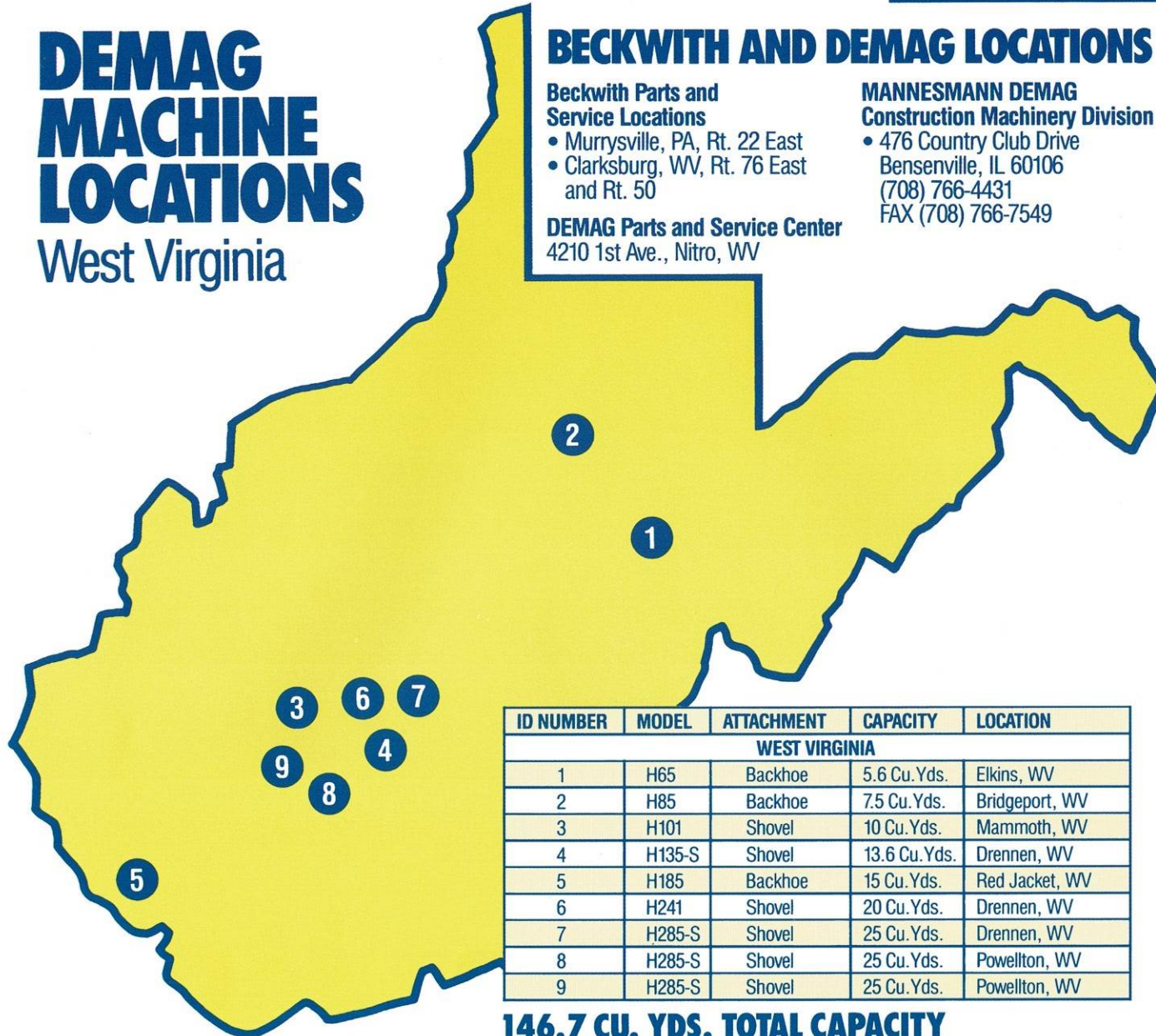
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ID NUMBER	MODEL	ATTACHMENT	CAPACITY	LOCATION
WEST VIRGINIA				
1	H65	Backhoe	5.6 Cu.Yds.	Elkins, WV
2	H85	Backhoe	7.5 Cu.Yds.	Bridgeport, WV
3	H101	Shovel	10 Cu.Yds.	Mammoth, WV
4	H135-S	Shovel	13.6 Cu.Yds.	Drennen, WV
5	H185	Backhoe	15 Cu.Yds.	Red Jacket, WV
6	H241	Shovel	20 Cu.Yds.	Drennen, WV
7	H285-S	Shovel	25 Cu.Yds.	Drennen, WV
8	H285-S	Shovel	25 Cu.Yds.	Powellton, WV
9	H285-S	Shovel	25 Cu.Yds.	Powellton, WV

146.7 CU. YDS. TOTAL CAPACITY
109.2 CU. YDS. CAPACITY SINCE 1987

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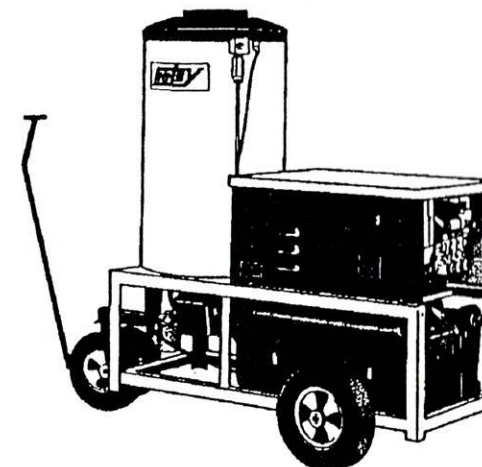
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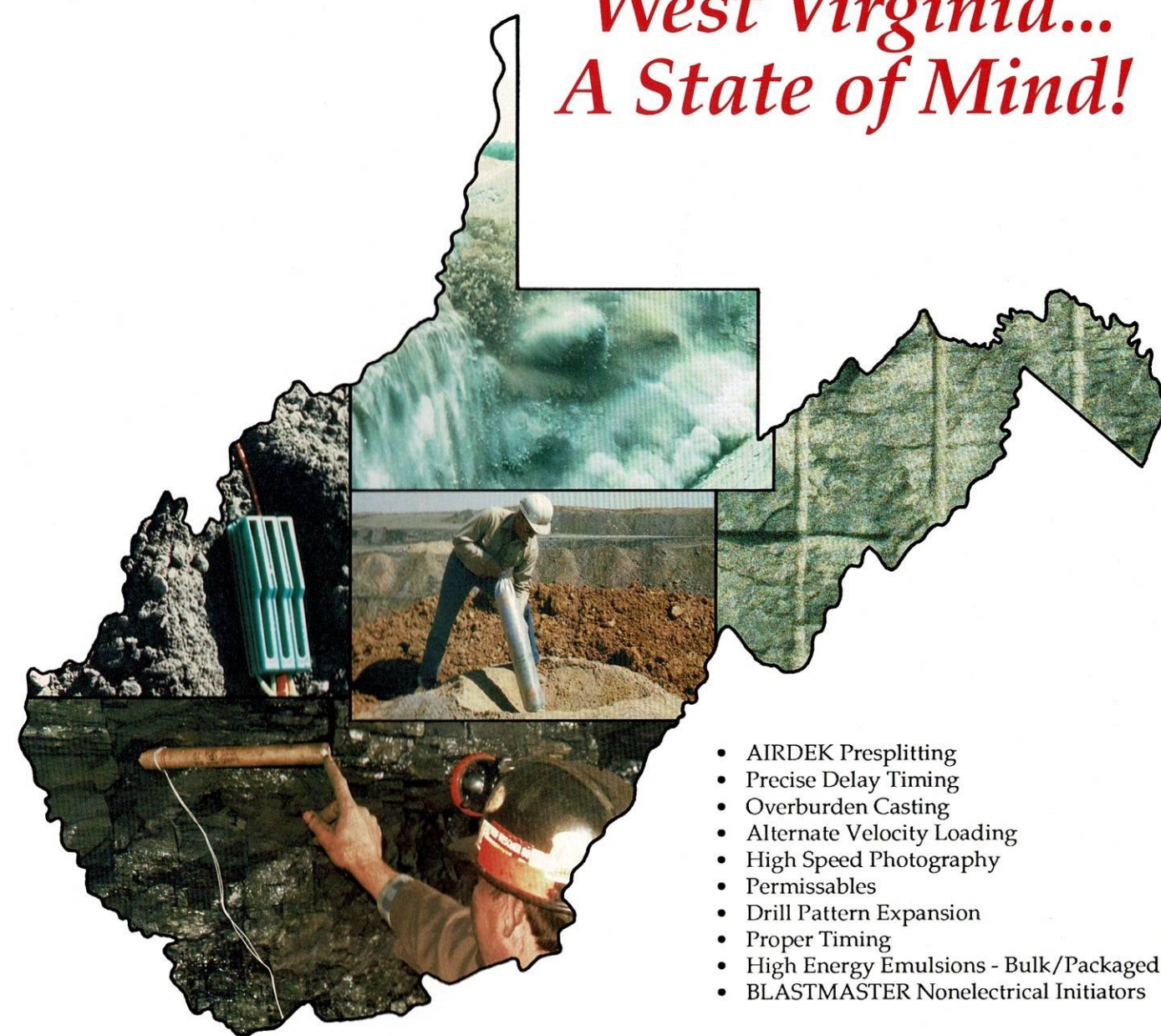
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The crew funded by Eaglehawk Carbon cleaned up this area of Beech Creek.

Coal companies help clean up Mingo

Mingo County has cleaned up nearly 280 miles of its streams and highways, thanks to an innovative program initiated by the County Redevelopment Authority, and the cooperation and support of several Association members.

MCRA Executive Director Mike Whitt, a former member of the West Virginia House of Delegates, enlisted the aid of several Mingo County coal companies to get his program off the ground.

"Trash has always been an issue in Mingo County," according to Whitt. "Everybody runs for office on that platform. Within the scope of the Redevelopment Authority, I saw an opportunity to do something about it."

"The purpose of this organization is to enhance the quality of life in Mingo County, West Virginia. We intend to do that through economic development. In order to attract new business to the county, we need to clean it up. It's as simple as that."

Whitt solicited and received the cooperation of a number of other agencies. "We got the sheriff's office involved, as well as the prosecutor's office, the solid waste authority, and the County Commission. We have also gotten help from the State Department of Natural Resources, the State Police, and the Department of Highways."

And then there's the coal industry. "That has been the basis of the whole operation," says Whitt. "A lot of businesses have helped with this, but the coal industry has really provided the foundation. I met with virtually all the coal companies in Mingo County, and asked them to fund a work force. I was very gratified at the response."

Whitt's proposal called for a 90 day blitz on the litter and trash problem. Companies were asked to provide \$15,000 for that period, enough to hire a five person crew and pay them \$5 an hour to clean up their respective areas of the county.

'..... the coal industry has really provided the foundation.'

Those who participated include Anchor Coal Co., Inc., Old Ben Coal Co., Mingo Logan Coal Co. Hampden Coal Co. Inc, Cline Brothers Coal, Eaglehawk Carbon, Inc., Rawl Sales & Processing Co., Marrowbone Development Co., Agipcoal USA, Inc., and B & E Cartage.

There were also indirect contributions in the form of company equipment and manhours. Whitt places the total direct and indirect contributions at just over \$200,000.

Nine crews went to work through April, May, and June, which was Phase I of the operation. One crew continued into Phase II, which lasted through October.

The numbers posted by the crews are impressive -- nearly 36,000 bags of trash, over 2,300 appliances, 95 abandoned vehicles, and more than 1,800 miscellaneous items, a total of 2,549,740 pounds of garbage and nearly 97 tons of metal.

The clean up of Calico Mountain was probably the program's most visible accomplishment. "We had a crew up there for the full 90 days," reports Whitt, "and then spent another two weeks with three full crews. They got the job done, cleaning up an accumulation of trash spanning 30 or 40 years."

"I'd say we accomplished about 80% of our mission last year, and we're starting up again this spring. There are some areas we haven't gotten to yet, and we've got some other areas to get back to with some maintenance, but this program has already made a big difference."

"Anti-litter and anti-dumping laws are being enforced more vigorously, and, perhaps more importantly, the people of Mingo County are taking more pride in their environment."



Calico Mountain received much of the program's attention, keeping three crews busy at the end of the 90 day clean up period.

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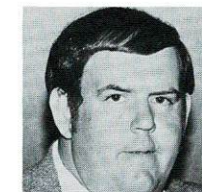
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Walker's new Powertrain Component Rebuild Shop, shown under construction, culminates a four year expansion project.

C. I. Walker looks to the future

Cecil I. Walker Machinery's new 20,000 square foot addition to its Powertrain Component Rebuild Shop is now fully functional. Located at the main facility in Belle, this two million dollar modernization investment will provide state-of-the-art Powertrain repair services, resulting in more efficiency as well as better value for Walker customers.

"The Powertrain Component Rebuild Shop addition is a result of a four year survey, planning, specification, and building procedure," said Ed Painter, Corporate Marketing Manager for Walker.

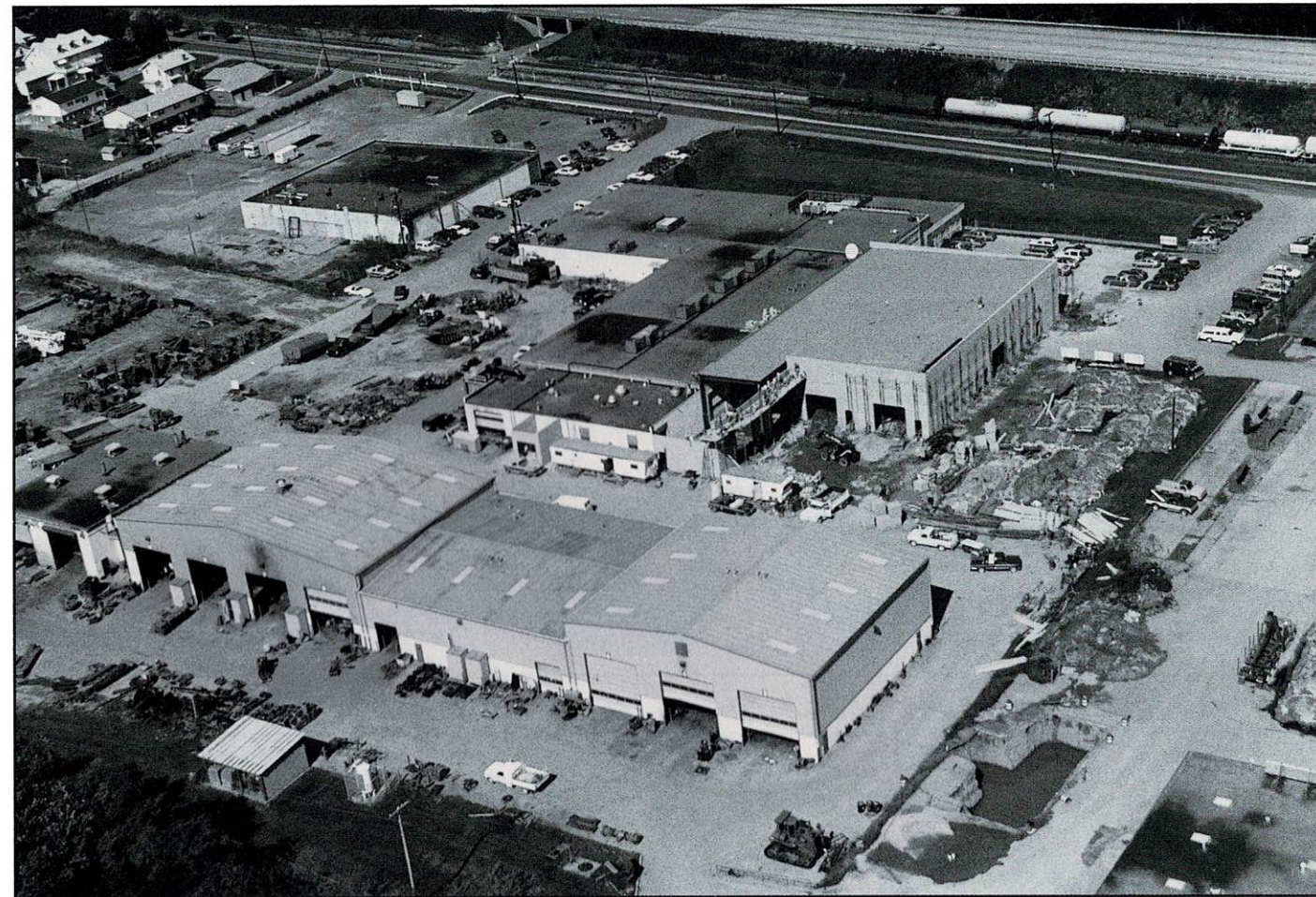
"We listened to our customers and involved many of our shop employees, management, and Caterpillar, Inc. in the process.

"The 1980's brought accelerating changes to our customers' needs," Painter explained. "Caterpillar introduced

a multitude of new engine and powertrain designs, and hi-tech tooling was revolutionizing diagnostic and repair procedures. To maintain our leadership, we had to expand and update this facility, which we built just 12 years ago.

"Mining machines are getting larger and more sophisticated, and customers expect high availability. That's why we have \$15 million inventory of parts. That's why we now have 168 service mechanics, and 69 employees in the parts department."

Walker Machinery is a heavy equipment dealer, primarily for Caterpillar, Inc., servicing 25 counties in western West Virginia and eight in southeastern Ohio. The company merchandises earthmoving and material handling equipment, parts, and service from seven locations, with a work force of approximately 450.



An aerial view of Walker's main facility at Belle.

This project is the result of a continuing reinvestment program begun by Walker in 1987. In the past four years, the company has also added a new branch in Jackson, OH, and introduced radiator, hydraulic and machine shop services in Beckley. Walker's branches now place all its customers within 50 miles of a company facility.

Over those four years, Walker has concentrated on equipping its shops and field service vehicles with modern diagnostic and repair tooling. It has also greatly expanded its technical training and technical communications efforts, resulting in an additional 70 jobs.

"As the only full-line heavy equipment dealer in West Virginia which is owned by West Virginians, this company's goal is to serve our customers, providing a good, safe workplace for our employees, and working to improve our communities and the business climate in West Virginia," says Painter. "Richard and Steve Walker are deeply committed to providing excellence in their products and serv-

ices for their natural resources, construction, industrial, and environmental customers."

For 40 years, Walker Machinery has been a major supplier to the basic industries of West Virginia and southeastern Ohio. The company, however, is constantly concerned about continuing negative economic rhetoric, policies and actions exhibited by state government against the basic industries.

According to Painter, "These industries, such as coal and manufacturing, provide some of the highest paying jobs in the state. We also provide very good wages and benefits. The tax revenues and charitable contributions generated by those in these industries are irreplaceable, and are a cornerstone of our economy.

"West Virginians need to support these industries rather than allow government policies to erode our industrial base. Walker Machinery can prosper if coal, timber, gas, construction and manufacturing are allowed to prosper."

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Is Sludge the Answer for Revegetation?

by Jeff Skousen and Chuck Clinger
West Virginia University

Introduction

About 100 to 150 gallons of water are used each day by the average person. Most of this water, plus the solids that are mixed with it, runs down a drain into the sewer system. In municipalities, the wastewater is normally conducted through some type of sewage treatment plant.

During wastewater treatment, the solids are removed by sedimentation and microbial digestion. The removal of solids from wastewater generates approximately 7.6 million dry tons of sewage sludge in the United States each year.

Sewage sludge is the solid or liquid remains of specialized bacteria which are used in the treatment plant. The treatment plant bacteria are used to digest organic solids in the wastewater, and they also reduce bacteria, viruses, and other potentially harmful organisms. During this bacterial digestion process at the treatment plant, almost all of the harmful portions of the sewage are consumed, digested, and transformed to inert organic matter and materials (similar to a slow-release commercial fertilizer).

Properties of Sludge

The physical and chemical properties of sludge are very important in determining whether they should be used as a fertilizer amendment on minesoils. Most sludges contain from 70 to 85% water, with the remainder being a mixture of solid organic compounds. These organic compounds contain: 2-6% nitrogen, 0.5-2% phosphorus, 0.5-2% potassium, 0.2-3% calcium, and smaller amounts of micronutrients and heavy metals (Table 1).

These characteristics make sludge an ideal organic fertilizer and amendment for minesoils. Nutrients in the sludge will be released slowly over a period of three to four years.

Supporting Evidence

Several investigators have found that sludge is particularly effective in revegetating disturbed lands. Roberts et al. (1988) found that sludge amended minesoils can equal or surpass native topsoil materials in plant productivity.

Table 1. Composition of several sludges from municipalities in West Virginia. These values represent normal elemental concentrations in sludge.

City	%					PPM					
	N	P	K	Ca	Mg	Cu	Cd	Zn	Ni	Pb	Cr
Beckley	4.4	1.5	0.5	1.8	0.3	339	4.2	1143	31	164	69
Charleston	2.2	0.7	1.1	0.9	0.6	214	2.3	438	46	145	32
Kingwood	1.9	0.8	0.3	0.9	0.1	218	2.0	390	15	57	16
Summersville	4.9	2.3	0.7	1.8	0.5	211	2.5	777	50	78	30
Princeton	5.8	2.1	0.7	3.2	0.4	158	2.5	846	24	57	57

Similar data is available for all wastewater treatment plants that land apply their sludge. Some towns for which data are available are: Alderson, Athens, Beverly, Buckhannon, Dunbar, Fairmont, Huntington, Martinsburg, Meadow Bridge, Morgantown, Nitro, Petersburg, Romney, Spencer, Summersville, Union, Warm Springs, and Williamson.

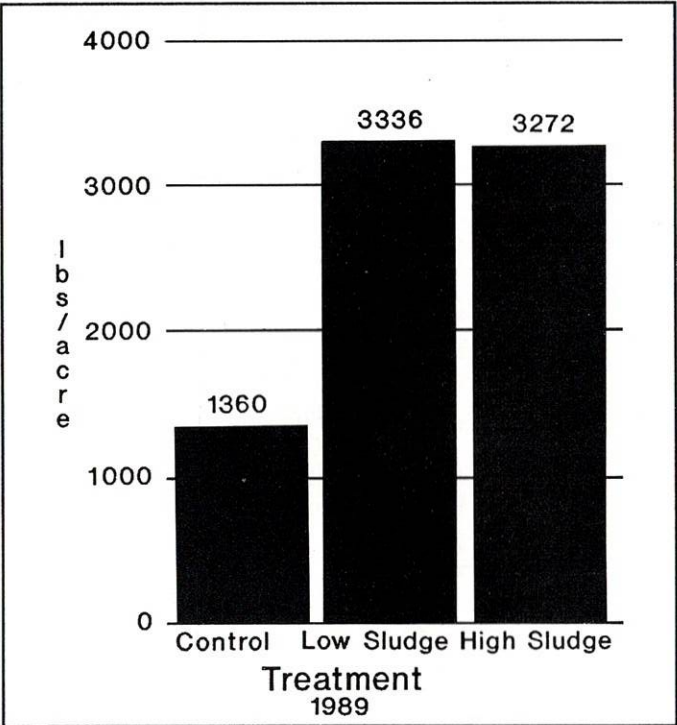


Figure 1. Mine soil vegetation, above ground dry weights of forage clipped from minesoil plots treated with sewage sludge in 1989. The low sludge treatment contained 30 pounds per acre of nitrogen, while the high sludge treatment contained 60 pounds per acre of nitrogen.

Stroo and Jencks (1985) found that the application of sludge and lime increased the vegetation on minesoils in northern West Virginia.

A similar increase in vegetation was found in many areas of the U.S. on many different kinds of soil (Keefer et al. 1986, Skousen 1988, Topper and Sabey 1986). Figure 1 shows the increase in vegetation when a northern West Virginia minesoil was amended with sewage sludge.

In addition to increasing plant growth on minesoils, sludge amendments have been shown to have additional benefits such as improved soil structure and chemistry. Particularly significant to mine operators in West Virginia is the ability of sludge to increase the pH of disturbed soils. Hill et al. (1977) demonstrated that sludge addition increased the pH of acidic minesoils in the eastern U.S.

Potential Problems

Like every resource, however, sewage sludge must be used wisely and cautiously. Sludge may contain a few harmful pathogens, and some metals and pesticides that could cause soil and water pollution. The West Virginia Department of Natural Resources has developed a set of rules that ensure that sludge is applied wisely. Tables 2 and 3 provide a list of the major restrictions that would affect land application during mine reclamation.

Table 2. A listing of some restricted areas and conditions where sludge may not be applied to land.

- Floodplains
- Frozen or snow covered ground
- Within 50 feet of surface water or highway
- Within 100 feet of property line
- Within 200 feet of drinking water supply or dwelling
- Land with pH of less than 6.2
- Land with steep slopes, high groundwater table, thin soil, etc.
- This is only a partial list (See WV-DNR for complete list)

Table 3. Requirements for sludge application to agricultural lands which apply to sludge application to most minesoils during reclamation.

- Do not exceed annual nitrogen requirement
- Do not exceed 50 dry tons per acre per year
- Do not exceed pollutant limits
- Maintain cumulative records

Heavy metals normally are not a concern during mine land reclamation because the sludge will contain such low concentrations that the heavy metal limits will not be approached when the sludge is applied at the authorized rate. Records, however, must be maintained by the treatment plant to make sure that these limits are not reached by annually applying sludge to the same site for many years.

The presence of pathogens in the sludge is probably the general public's major concern with the land application of sludge. In most cases, this concern is unfounded. First, most of the pathogens will be destroyed in the treatment plant and, secondly, the remainder will be destroyed within a month once the sludge is applied to the soil. To be extra safe, the area must be fenced and/or "no trespassing" signs installed for a year. Table 4 lists the primary procedures that must be followed when sludge is applied as a soil amendment. The application rate will be determined by the WVU Extension Service based on the analysis of the sludge and the soil.

Table 4. Requirements that a surface mine operator must comply with when applying sludge to mined land.

- WWTP-Distributor-Land Owner Agreement
- Apply sludge based on nitrogen requirements
- Apply within 60 days
- No grazing or harvest for 60 days (after application, not delivery)
- Limit access for one year
- Keep required records!
- Use only treated sludge!

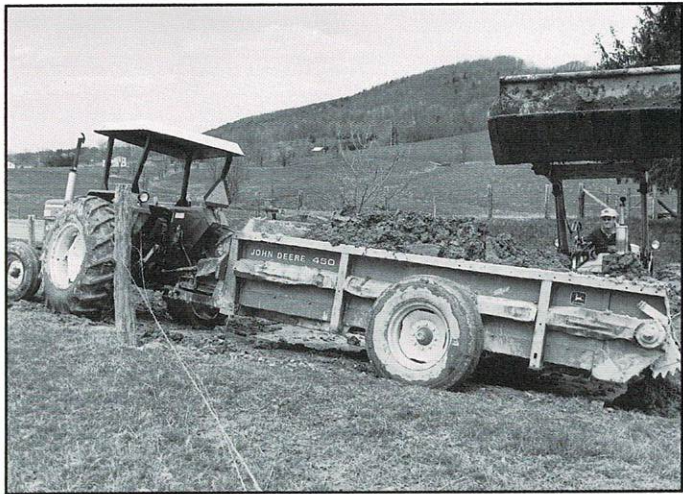


Figure 2. Sludge being loaded into a typical farm manure spreader.

Land Application Considerations

Sludge may be applied in several ways. A typical manure spreader is the most common method. Figure 2 shows the sludge being loaded into a spreader from a stockpile in the field. The application to the field is shown in Figure 3.

If the land is fairly level, the dump truck that delivers the sludge can "tailgate" the material in rows across the site. The spreading is completed with a blade on a tractor or small dozer. If the sludge is liquid, it can be spread directly from tank trucks.

The paperwork required for sludge application is shown in Table 5. The first 5 items become attachments to the permit modification application, or would be attached to the initial permit application if a determination was made to use sludge during premining planning.

The WVU Extension Service will assist in developing plans to use sludge during revegetation. If you require assistance or information on the use of sewage sludge during revegetation, please call or write:

Chuck Clinger
 Assistant Extension Specialist - Waste Management
 1076 Agricultural Sciences Building
 Morgantown, West Virginia 26506
 (304) 293-6256/2219



Figure 3. Sludge being applied to soil.

Table 5. A list of documents required for application of sludge to mined lands and the source of the information.

Document	Source
1. DNR Approval for Land Application	Treatment Plant Operator
2. Sludge Analysis	Treatment Plant Operator
3. Soil Analyses (Number depends on size of site and heterogeneity of soil)	Mine Operator
4. Detailed Site Plan/Application Plan	Mine Operator/Treatment Plant Operator/WVU Extension Service will provide advice
5. Modification Application/Non-Significant Revision	Mine Operator

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Association Notebook

The Association's ranks have swelled by 17 members over the winter months. Four general members and four associates were approved at the November Lakeview meeting, and another three general members and six associates were approved at the February gathering in Hawaii.

Welcome to these new members at the outset of our Silver Anniversary celebration:

General Division

Eaglehawk Carbon, Inc., Grundy, VA, James O. Bunn - representative; **Lucas Jade Enterprises, Inc.**, Beckley, James E. Lucas - representative; **MacJan, Inc.**, Princeton, James W. Anderson, II - representative; **Pehem Industries, Inc.**, Delbarton, Walden Hatfield - representative; **Pioneer Fuel Corp.**, Beckley - L. Wayne Isaacs - representative; **Williams Construction Co.**, Bradley, Jack Williams - representative; **Wind River Resources Corp.**, Madison, Phillip R. Cooper - representative.

Associate Division

Clemmer Coal Co., Summersville, Richard L. Showalter - representative; **Hitachi Construction Machinery Corp.**, Long Valley, NJ, Edward Garbarino - representative; **Marshall Miller & Associates**, Pittsburgh, PA, John W. Sabo - representative; **Reliance Surety Co.**, Richmond, VA, Charles E. Salmon - representative; **Shuman, Anand & Poe**, Charleston, Gerry Kelley - representative; **Southern Building Systems**, Charleston, Jim Matics - representative; **Summit Engineering, Inc.**, Pikeville, KY, David Rasnick - representative; **TerraSod, Inc.**, Malden, Charles T. Price - representative; **Triad Engineering, Inc.**, Mark H. Reger - representative; **Trimble Engineers & Constructors, Inc.**, Charleston, William J. Trimble - representative.

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Coal Calendar

May

- 12-16** **1991 National Meeting of the American Society for Surface Mining and Reclamation**, Durango, CO, contact Bill Plass, ASSMR, 21 Grandview Dr., Princeton, 24740, (304) 425-8332.
- 20** **Short Course, "Blast Casting,"** West Virginia University, contact Sherry Strahin, Department of Mining Engineering, P.O. Box 6070, Morgantown 26505, (304) 293-7680, FAX 293-5708.
- 21-22** **Regulatory Assistance Program, Spring Meeting**, Kansas City, MO, contact Marty Jo Rogers, RAP, National Coal Association, 1130 17th St. NW, Washington, D.C. 20036, (202) 463-2625.
- 21-23** **Short Course, "Surface Mine Blasting,"** West Virginia University, contact Sherry Strahin, Department of Mining Engineering, P.O. Box 6070, Morgantown 26505, (304) 293-7680, FAX 293-5708.
- 22-24** **1991 Southeast Mining Institute**, Tuscaloosa, AL, contact Charles Forman, University of Alabama, College of Continuing Studies, P.O. Box 870388, Tuscaloosa, AL 35487, (205) 348-6222.

June

- 2-6** **AMC Coal Convention '91 and Longwall U.S.A. International Exhibition and Conference**, Pittsburgh, PA, contact Clarence Smith, AMC, 1920 N St. NW, Suite 300, Washington, D. C. 20036, (202) 861-2831.
- 3-5** **5th U.S. Mine Ventilation Symposium**, West Virginia University, contact Sherry Strahin, Department of Mining Engineering, P.O. Box 6070, Morgantown 26505, (304) 293-7680, FAX 293-5708.
- 10-12** **10th Conference on Ground Control in Mining**, West Virginia University, contact Sherry Strahin, Department of Mining Engineering, P.O. Box 6070, Morgantown, (304) 293-7680, FAX 293-5708.
- 12** **Peter's Creek Coal Association, Fifth Annual Dinner - Boat Excursion**, Charleston, contact Mike Perilli, PCCA, P. O. Box 654, Summersville 26651, (304) 872-4586, FAX 872-4588.

August

- 8-11** **West Virginia Mining & Reclamation Association, Annual Meeting**, The Greenbrier, White Sulphur Springs, contact Patty Bruce, WVMRA, 1624 Kanawha Blvd. E., Charleston 25311, (304) 346-5318.



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