

Green Lands
West Virginia Surface Mining
and Reclamation Association
1624 Kanawha Blvd., East
Charleston, WV 25311

MR. DAVID L. IDLEMAN
DIVISION OF RECLAMATION
P. O. BOX 249
ELK GARDEN, WV 26717

Bulk Rate
U. S. Postage
PAID
Charleston, WV
Permit No. 2281

A Sensible Approach to Group Insurance



WEST VIRGINIA SURFACE MINING
AND RECLAMATION ASSOCIATION

Partners in your
health protection



CONNECTICUT GENERAL
Life Insurance Company, Hartford



CITIZENS
Insurance agency

- "Credit Card" Claim System
- 2 Week Claims Payment
- Choice of 4 Basic Plans
- Each Plan Fully Insured

For further information contact

John Stacey
Rick Kephart
Ray Halsey
Jeff Lilly

525 Federal St.
P. O. Box 4317
Bluefield, West Va. 24701
(304) 325-3611

Spring 1983

Green

Lands



Why Buy a Copy When You Can Own The Original?

When you're leading the way others often follow behind trying to catch up. It's the same with insurance for the coal industry. Flat Top Insurance Agency is leading the field while others are trying to catch up.

Flat Top Insurance Agency pioneered in the field of comprehensive insurance programs designed exclusively for the coal industry.

There are others available today, but there's only one CCMP (Comprehensive Coal Mining Package) and that's from Flat Top Insurance Agency—the leader in coal mining insurance. So, why buy a copy when you can own the original?



FLAT TOP INSURANCE AGENCY

320 Federal Street—Bluefield, WV • (304) 327-3421



**COMPREHENSIVE
COAL MINING PACKAGE
(CCMP)**

• West Virginia • Virginia • Kentucky • Tennessee • Ohio • Pennsylvania • Alabama •

CLARK & ANDERSON EQUIPMENT...WE'RE HELPING TO CONSTRUCT WEST VIRGINIA'S FUTURE.

In the West Virginia coal and construction industries, you can tell a lot about a man by the clothes he wears.

Take his hat, for instance. Chances are, his headgear will tell you something about his preference in construction equipment. Today, you're likely to find the well-dressed West Virginia equipment operator wearing two hats...Clark's and Anderson Equipment's.

As the exclusive distributor of Clark Equipment in West Virginia, we at Anderson Equipment are committed to providing the state's coal and construction industries with the best equipment and product support services available.



And we're backing that commitment with a substantial investment in new facilities. In fact, we've

just opened a new branch operation in Charleston...and will soon be opening a branch in Jane Lew. (And that's just the beginning of our West Virginia expansion plans.)

In addition to Clark, you'll find a number of other quality lines in the Anderson Equipment lineup. Names like Reedrill, Gradall and Gradall/Loed. Plus a host of quality accessory products. And one of the largest parts inventories in the state.

Clark and Anderson. New partners in West Virginia's progress.



Kingwood
304-329-2722

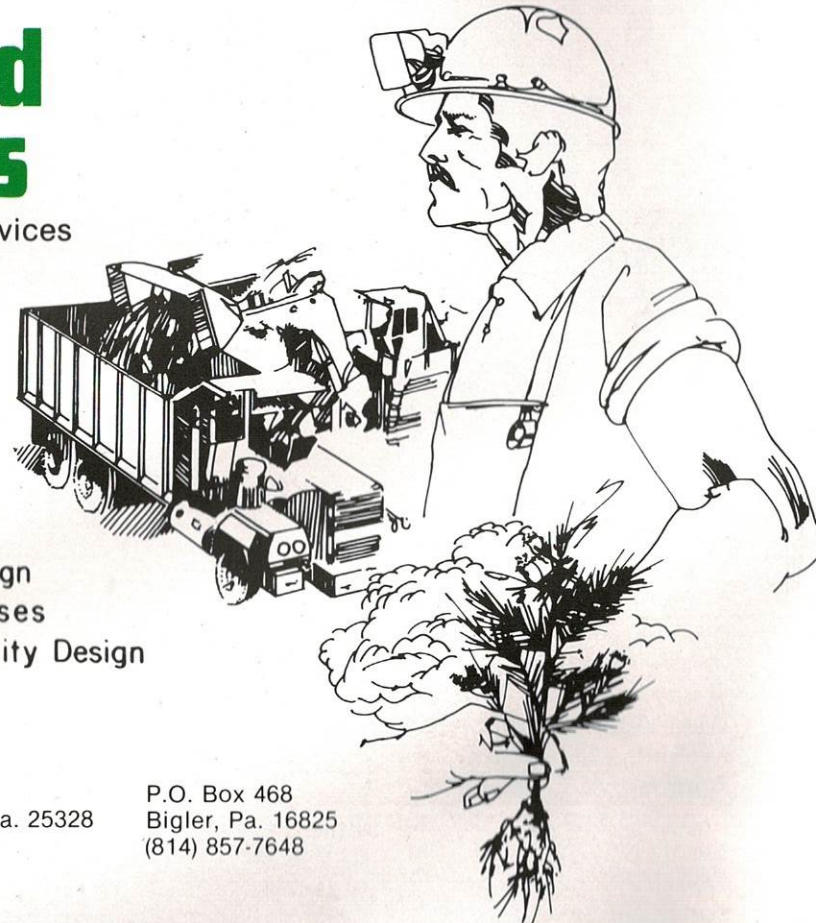
Charleston
304-342-2300

Jane Lew
(Opening Spring of 1983)

Robins and Associates

Mine Planning and Design Services

- Mine Permitting
- Mining Engineering
- Economic Analyses
- Reserve Evaluations
- Transportation Design
- Baseline Investigations
- Dam and Impoundment Design
- Soils and Overburden Analyses
- Wastewater Treatment Facility Design



2233 N. Front St.
Harrisburg, Pa. 17110
(717) 233-2771

P.O. Box 2332
Charleston, W.Va. 25328
(304) 343-1102

P.O. Box 468
Bigler, Pa. 16825
(814) 857-7648

**Need Hydro Seeding & Mulching of Surface
Mined Areas, Silt Ponds, Mine Mouths Haul
Roads, Etc. ???**

**Let
Penn Line Service, Inc.
give you an estimate**

Call Our Toll Free Number 800—245-6800

Ask For Ron Hill



Penn Line Service, Inc.
Scottsdale, Pennsylvania 15083

Index to Advertisers

Advance Coal Management.....	Inside Back Cover
AE Associates	48
Beckwith Machinery	42
Sturm Environmental Services	12
Call Detroit Diesel Allison	13
Cecil I. Walker Machinery.....	5
Chamberlaine & Flowers	48
Citizens Insurance	Back Cover
Clark & Anderson Equipment	1
Cummins East Central	11
D&D Reclamation	4
Flat Top Insurance	Inside Front Cover
Jasper Engines	29
McDonough Caperton Shepherd Group	28
Penn Line Service	2
Rish Equipment.....	44
Robins & Associates	2
Skelly & Loy	4
Technical Testing Laboratories.....	4
Verdyol	43
Willco Reclamation.....	43

Green Lands

Volume 13 Number 1

- 6 Hobet opens new mining era
- 14 Technical Section
Mining coal in West Virginia with a 72 cubic yard
dragline
- 30 10th Symposium draws 400
- 32 1983 Reclamation Awards
- 45 Association Notebook
- 46 Semi-Annual Meeting

Cover—Hobet Mining & Construction Co., Inc. has an excellent reclamation record, as evidenced by the picture on the lower half of our cover. The top picture represents the company's firm commitment to the future of coal mining. "Big John" is the largest piece of mining equipment in West Virginia, and it's just part of Hobet's investment in its own and West Virginia's future. For details, see our cover story on page 6, and the technical section starting on page 14.



Editor
R. Daniel Miller

Business
Mary Ann Steele

Circulation
Brenda Garnett

Green Lands is a quarterly publication of the West Virginia Surface Mining and Reclamation Association with offices at 1624 Kanawha Boulevard East, Charleston, West Virginia, 25311 telephone (304) 346-5318

President — Benjamin C. Greene
Asst. to President — Patty Bruce
Vice President — William B. Raney
Chairman of the Board — Donald R. Donell
1st Vice Chairman — Tracy W. Hylton
2nd Vice Chairman — Carl DelSignore
Secretary/Treasurer — Charles T. Jones
Associate Division Chairman — Frank W. Vigneault

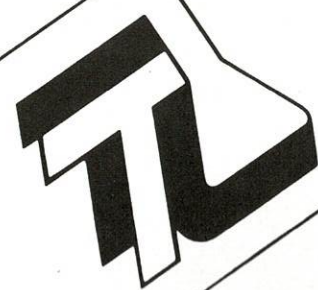
Directors

W. C. M. Butler, III	M. A. Messenger
C. E. Compton	D. T. Morrison
J. R. Fairchild	D. M. Porreca
J. J. Faltis	W. S. Ritchie, Jr.
W. J. Forbes	R. C. Stevens, Jr.
L. W. Hamilton, Jr.	L. A. Streets
J. H. Harless	A. K. Teeter
Gerald Hartley	R. H. Tinsley
B. W. Harvey	R. N. Welch
M. C. Jenkins	J. R. White
R. H. Jeran	J. R. Williams
J. C. Justice	
D. M. Keating	
R. L. Kosnoski	

Honorary Member
F. B. Nutter, Sr.

Analysis of

- Coal
- Overburden
- Water & Wastewater
- Engineering Properties of Soils



TECHNICAL TESTING LABORATORIES, INC.
1263 GREENBRIER ST.
Charleston, WV 25311
304-346-0725

- Coal Preparation Plant Permit
- Surface & Deep Mining Permit
- Discharge Mining Report

"Revegetation Specialists"
Over 30 Years Combined Experience

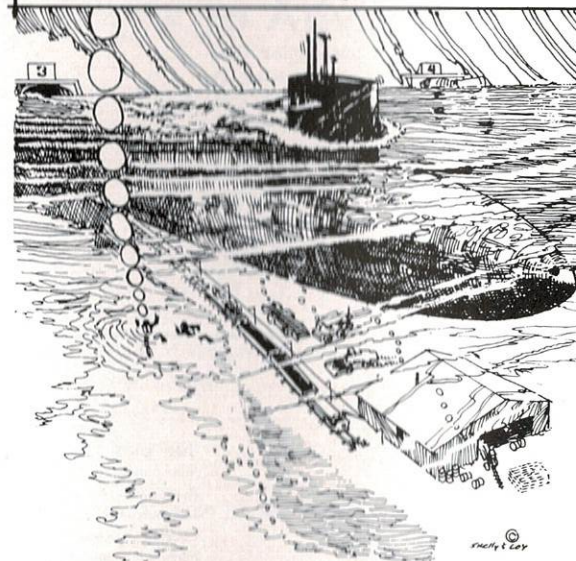
D & D Reclamation, Inc.

Tree Planting — Hydroseeding

David J. Ozmina, President
Professional Fisheries Biologist
Certified Fisheries Scientist
Certified Wildlife Biologist

P. O. Box 1004
Beckley, W. Va. 25801
Tel. 304-253-8309

I suppose we should've called
Skelly and Loy when the mine developed
an excess water problem!



SKELLY AND LOY ENGINEERS-CONSULTANTS

For More Information Call: Dale D. Durrett, P.E.
(304) 345-4920

CHARLESTON
CLEARFIELD HARRISBURG
GREENSBURG LEXINGTON

We guaranthree it!

Walker will add extra value
to your Cat machine investment.

When you lease or purchase a new Cat utility machine from Walker Machinery, you'll get three powerful guarantees to protect your machine investment and avoid downtime. It's called WALKER PLUS 3. And it's absolutely free!

1. Walker guarantees that you will get any part that is essential to your Cat machines' proper operation within 48 hours — or you'll get that part FREE.
2. Walker guarantees that if your Cat machine is down for repairs, we'll have it operational within 48 hours from the time it arrives at our facilities. If we can't do it within that time, we'll either lend you a comparable machine at NO COST or we'll give you a CREDIT equal to our rental charge for an equivalent machine.
3. Walker warrants the power train components on your Cat machine for THREE YEARS OR 5,000 SERVICE HOURS — whichever comes first. If a failure occurs due to manufacturer's defects in the workmanship or materials, we'll repair it FREE.

The dependability of Caterpillar products and Walker parts and service support are established facts. Now, WALKER PLUS 3 backs them *in writing* with solid guarantees that add value to your machine investment. It's the kind of protection you can't get anywhere else. We guaranthree it!

Give us a call for all the details.

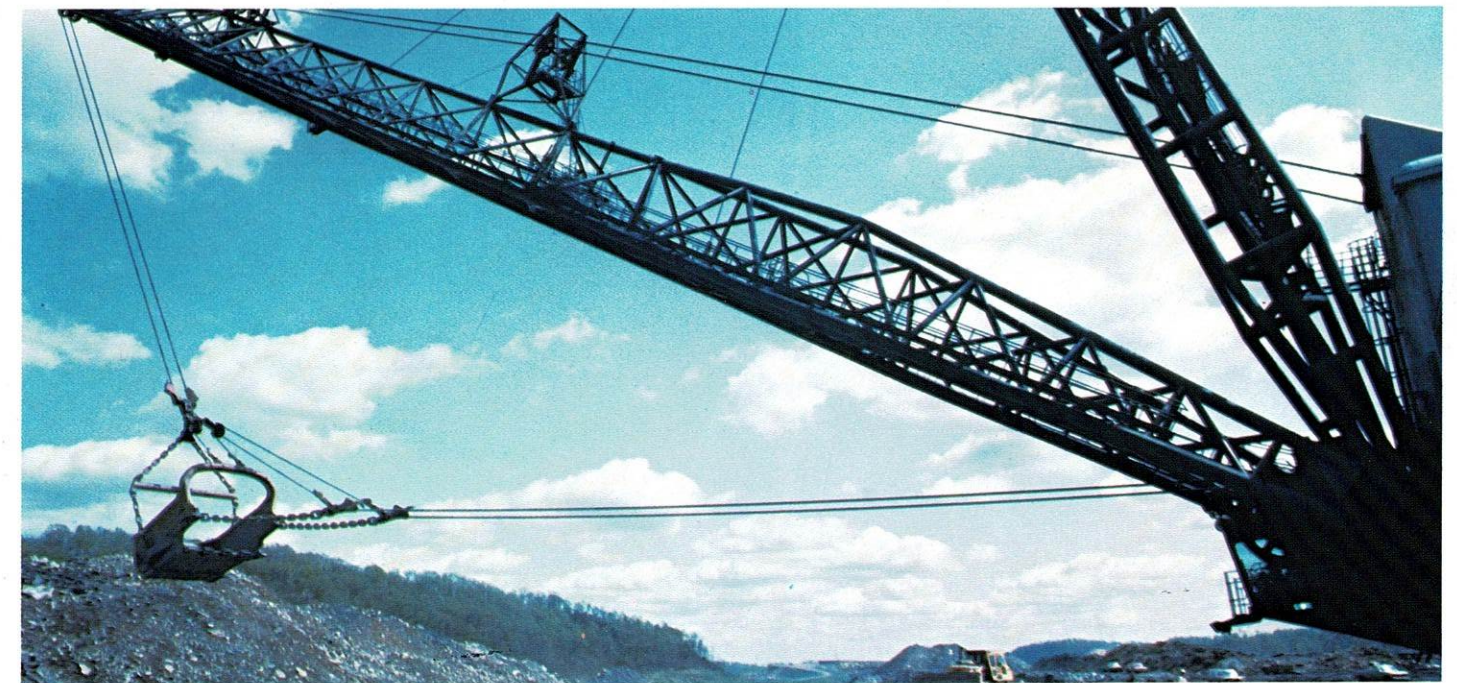


Parkersburg	304-485-4547
Summersville	304-872-4303
Charleston	304-949-6400
Beckley	304-253-2706
Logan	304-752-0300



Caterpillar, Cat and are Trademarks of Caterpillar Tractor Co.

The WALKER PLUS 3 Guarantee covers these Cat machine models: D3B, D4E, D5B, D6D, D7G; 910, 920, 930, 950B, 966D; 120G, 130G, 140G; 215, 225, 227; 613, 615; 518, 528; 931, 943, 953, 963, and 973.



"Big John" lowers the boom on overburden at Hobet Mining's 5000 acre Boone County operation.

Hobet opens new mining era

It's been tagged "Big John," and it's the biggest, most impressive looking piece of machinery ever to lay down tracks in the State of West Virginia.

"Big John" is the new dragline of Hobet Mining Company, operating on a 5000 acre surface mining job near Danville, in Boone County. "John" is after John Kebblish, president of Ashland Coals, Hobet's parent company. One look and it's quite obvious where they got the "Big" from. The machine is immense in every detail.

Its boom rises more than 200 feet above the ground. Its 72 yard bucket is about twice the size of a hotel elevator. The cables which hold the bucket are as thick as a human forearm. Being inside the machine is the same as being inside a building. It is powered by four engines generating 10,000 horsepower.

"Big John" came to West Virginia from Bucyrus-Erie and from Pocatello, Idaho. Shipment required 190 trucks and 17 rail cars. It took more than a year to put the thing together.

Once assembled, the drag weighs

4000 tons. It required 4000 gallons of paint to dress the machine in Hobet's distinctive red, blue, and gray design. Total cost — \$25 million. For all that time, money, and effort, "Big John's" masters naturally expect a lot in return. So far they haven't been disappointed.

"We started it up on March 26, and expected to break it in gradually," commented Operations Vice President Ken Woodring. "But from the first day, its performance had exceeded our expectations." Given the machine's specifications, that's quite a statement. "Big John" is designed to work 24 hours a day, and is capable of moving up to 75,000 cubic yards of material per day.

The huge dragline is only part of Hobet's investment at its Danville operation, where an estimated 140 million tons of low sulphur coal are available for surface mining alone. The company has also fired up a new 27 cubic yard shovel. Together, these two earth movers use nearly \$1 million worth of electricity per year. The total cost for the new machines

plus an onsite preparation plant is put at \$50 million.

Such an investment, of course, requires a lot of long term planning, as well as faith in the future. "Big John" can crawl about its own backyard on huge mechanical legs at the rate of about one mile a day, but moving it to a different mountain would cost \$6-7 million and a lot of time.

Draglines in general, and all equipment of this magnitude, are new to southern West Virginia mining operations. "Obviously we are looking at a long term mining situation," explains Hobet President Bill Ritchie. "After the initial investment, these machines will move earth for half the cost of conventional equipment. Also, we get a coal recovery rate of about 95%. We mined 1.2 million tons of coal here last year. This year, that figure should go to 2 million."

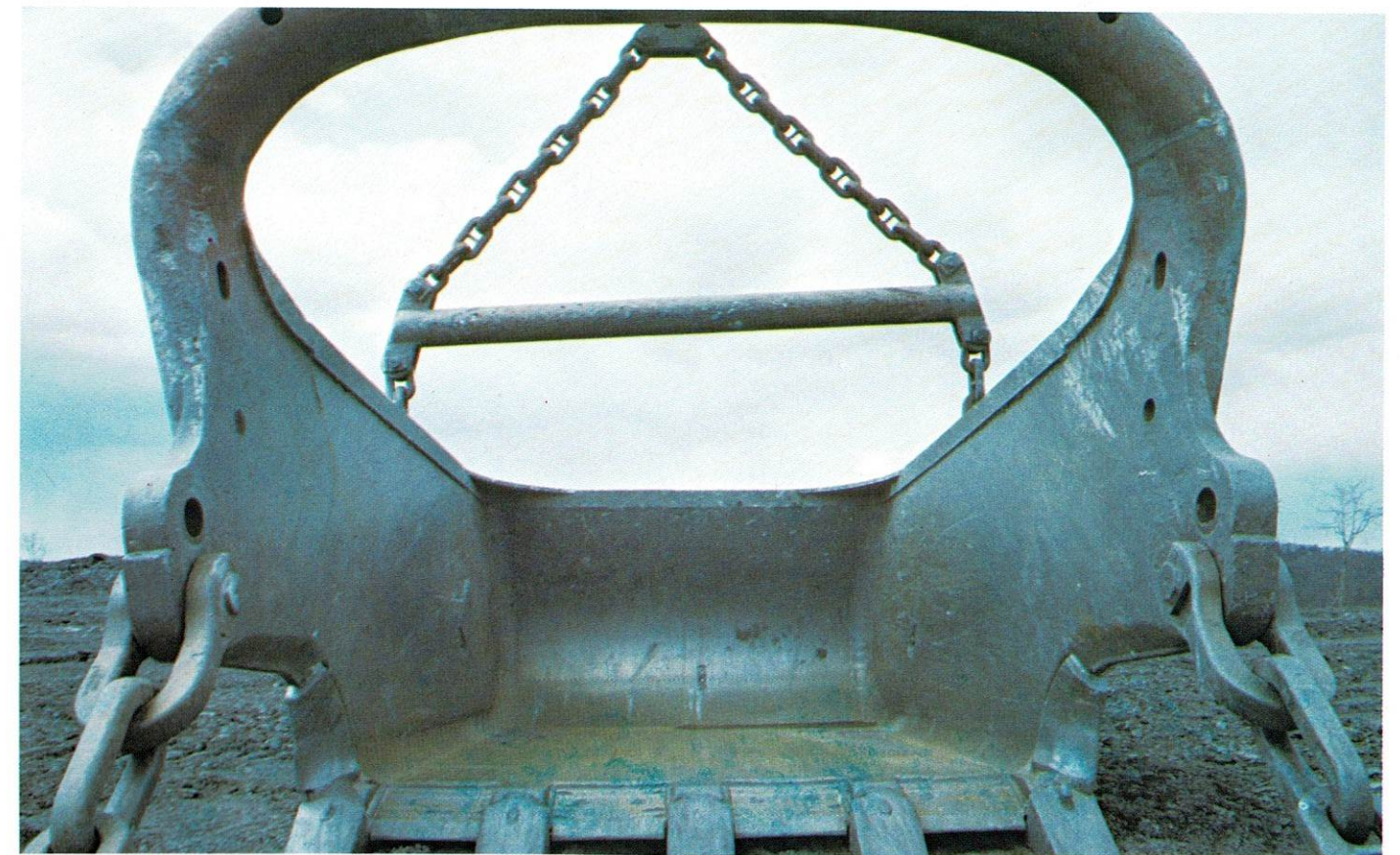
If that's what "Big John" can do for coal production, then it's a shame he can't put in a few guest appearances around West Virginia.



"Big John" is more like a building than a machine, with its cab on the second floor and its peak 20 stories high.



A few of "Big John's" bosses — (l-r) Willy DeLoach, maintenance superintendent; Leonard Smith, dragline superintendent; Raymond Smallwood, mine manager; Ken Woodring, vice president for operations.



This is the bucket that can move 75000 cubic yards of earth per day.



Hobet's plan for the future includes "Little John," a 27 yard shovel, which, despite the name, is a pretty fair size piece of equipment in its own right.

Cummins Service



"BIG JOHN" STATISTICS

WEIGHT	8 million pounds/4,000 tons
HORSE POWER	17,100 (4 drag motors @ 1,300; 6 hoist drum motors @ 1,300; 4 swing motors @ 1,045)
ELECTRICAL POWER	28,500 volts, initial feed
LENGTH OF BOOM	325 feet
HEIGHT OF BOOM	201 vertical feet @ 35° angle
SWING CAPABILITY	360°
OPERATING RADIUS	296 feet (sitting on goal line of football field, could dig goal posts at other end)
DEPTH OF CUT	75 feet to 110 feet (planned) 185 feet (possible)
BUCKET CAPACITY	72 cubic yards
BUCKET DIMENSIONS	14' wide x 20' long x 18' high
ANNUAL YARDAGE	12 million cubic yards
OPERATING/MOTOR COMPARTMENT	4 stories high
BASE DRUM DIAMETER	66 feet
TOTAL CABLE LENGTH	approximately ½ mile—¾" wire rope (hoist—1,515'; life of 5-6 months) (drag—935'; life of 2-3 months)
WALKING SPEED	0.14 mph (7 feet in 40 seconds)
PLANNING/CONSTRUCTION TIME	5 years
ACTUAL CONSTRUCTION TIME	18 months on site
WELDING RODS USED	40 tons
GALLONS OF PAINT	4,000 gallons
COST	\$24 million
MANUFACTURER	Bucyrus-Erie
OPERATING MANPOWER	4 per shift (operator; 2-oilers; groundman)
DRAG SUPERINTENDENT	Leonard Smith
MAINTENANCE SUPERINTENDENT	Willy DeLoach
MINE MANAGER	Raymond Smallwood

"Big John" was moved to Boone County operation in 17 railroad cars and 160 truckloads from Pocatella, Idaho.

Rely on Cummins Experts

As the owner of a Cummins diesel, you've got one of the most reliable engines you can buy. But if something does go wrong, we'll get you turned around fast with trained Cummins technicians and a complete inventory of Genuine Cummins Parts and ReCon® rebuilt assemblies. We're on call 24 hours

a day, and if you can't get to us, we'll get to you with a service truck and a diesel technician.

We also have the maintenance programs and diagnostic equipment to spot trouble before it strikes. And service training courses are available for your mechanics.

Cummins service is just a phone call away... we're in the Yellow Pages under "Engines—Diesel". Cummins Service. Why gamble on anything else?

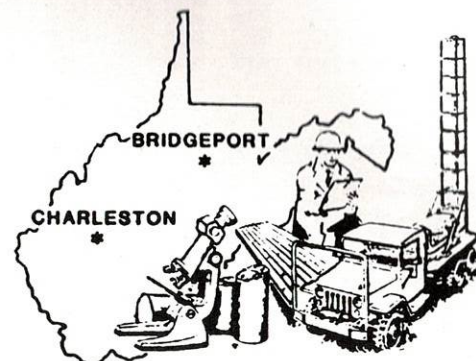
Cummins East Central, Inc.

South Charleston, WV	304-744-6373
Fairmont, WV	304-367-0196
Cincinnati, OH	513-563-6670

Sturm Environmental Services

John W. Sturm, President

NOW WITH A NEW LABORATORY FACILITY
IN MARMET, WEST VIRGINIA.



- * Determination of Probable Hydrologic Consequences
- * Hydrologic Baseline Studies
- * Soil & Overburden Assessments
- * Aquatic & Benthic Evaluations
- * Acid Mine Drainage Trouble-shooting
- * Toxic Overburden Handling
- * Free pick-up at selected West Virginia locations

- * NPDES Monitoring
- * Complete In-House Testing Services
- * Wastewater Analysis
- * Leaching Studies
- * In-House Degreed Professionals:
*Agronomists, Soil Scientists, Geologist,
Hydrologist, Soil Chemist, Chemists,
Aquatic Biologist, Biologist, Forester*

MAIN OFFICE: P. O. Box 650
Bridgeport, WV 26330
(304) 623-6549

SOUTHERN OFFICE: P. O. Drawer F
Marmet, WV 25315
(304) 949-5199

NOBODY DOES IT BETTER!

When times are tough, price becomes very important, and regardless where you look, you can always find cheaper parts — you can always find cheaper prices — and you can always find cheap labor.

But in the long run you always get what you pay for.

Our reputation is built on quality — and we still believe customers want quality in a product or in the service they receive. With 45 years of quality work behind us already we **know** we can do a better job for you — with Detroit diesel engines, Allison transmissions, **reliabilt** parts, genuine DDA parts, and most important — with our team of professionals.

You don't have to settle for second best. We have seven locations and over 60 authorized dealers throughout West Virginia, Ohio, Kentucky and Virginia to work with you.

Don't You Deserve The Best? Call Detroit Diesel Allison

South Charleston, W. Va. 25303
Box 8245 304/744-1511



Steubenville, Ohio 43952
Box 2069 614/264-7121

Strasburg, Ohio 44680
Box 167 216/878-5516

Grundy, Va. 24614
Box 828 703/935-2559

Marietta Ohio 45750
Rt. 7 Newport, Pk. 614/373-9411

(Hazard) Jackson, Ky. 41339
Box 1613 606/666-4981

Cambridge, Ohio 43725
Box 804 614/439-6631

TOLL FREE AFTER HOURS
IN W. VA. 1-800-642-3627
OTHERS 1-800-624-8225



NOBODY DOES IT BETTER!

Detroit Diesel Allison
Division of General Motors Corporation



ADVERTISING RATES

Ad	Dimensions	Member WVSMRA Rate	Nonmember Rate
Full Page	4 columns by 13 inches	\$480	\$600
Display Page	3 columns by 10 inches	\$320	\$400
Half Page	26 column inches	\$280	\$350
Quarter Page	13 column inches	\$160	\$200
Eighth Page	6½ column inches	\$100	\$125

Column Width — 15 Picas

Deadline (Closing Date) — 1st of each month preceeding publication
i.e. January 1 for January edition.

Member Discounts Only — No Agency Discounts

Advertising materials should be received in the form of black and white prints or negatives.

Mining Coal in West Virginia With a 72 Yard Dragline

by Kenneth G. Woodring
Vice President—Operations
Hobet Mining & Construction Co., Inc.

Ashland Coal, Inc. founded in 1975, is based in Huntington, West Virginia. It markets nearly 5 million tons of coal annually to both domestic and foreign customers. Operational areas include Eastern Kentucky and Southern West Virginia. Total coal reserves are approximately 1 billion tons. Hobet Mining and Construction Co., Inc., Ashland's West Virginia operating division, is headquartered at its No. 21 mine site in Boone County near Danville. Ashland's West Virginia holdings include about 45,000 acres representing reserves totaling 400 million tons of high quality steam coal. Mining is presently conducted in Boone and Logan counties.

Ashland Coal acquired Hobet Mining in March 1977. At that time a preparation plant with an annual capacity of 2 million tons was under construction on the Hobet 21 mine site. One of the first orders of business was to design a mine plan to provide 2 million annual tons of production for the preparation plant which has a 20-year life. The coal production would come from adequate reserve base. The decision was made to develop the surface reserves first, and maximize cash flow by potentially more economical surface mining methods.

Through the early 70's surface mining in mountainous Southern West Virginia was generally done by contour mining and/or augering techniques. As market conditions

changed and larger equipment became available, in the mid-70's, contouring at several mining locations gave way to mountain top removal in order to maximize reserve recovery. The mountain top method was explored for the development of the Hobet 21 mine property. This mining method involves the removal of all overburden and coal from the top of the mountain down to the lowest coal horizon to be mined in a particular mountain. Generally, the overburden is hauled to valley fills in hollows adjacent to the area being mined. Overburden can also be backstacked on the solid mountain area where the lowest seam has been removed. These particular coal seams are relatively flat lying. The overburden consist mostly of shale or sandstone and must be drilled and shot.

Generally, wheel-loaders and trucks or shovels and trucks have been used for this type mining. The contiguous acreages at Hobet's 21 mine site prompted the consideration of larger mining equipment; i.e., a dragline.

A look at a typical cross section of the reserve is appropriate. Figure 1 shows the various available coal seams, the relative thicknesses of overburden separating them, and the original ground line. Average relief is 500 to 600 feet. Typical mountain top removal involves removal of all overburden in the adjacent valley with some backstack

on the middle Stockton bench. Certainly, the application of a dragline on the original topography would be impossible because of the steep slopes, irregular shapes, and overall relief. A dragline requires a relatively flat surface area on which to operate. Using some imagination, look again at the cross section and consider removing the overburden only to the 5-block level, placing it in the adjacent valley fill on the right. The result is shown in Figure 2. The flat area for the dragline is now available. Placing a dragline on the 5-block level and digging to the upper Stockton creates a rather conventional dragline operation. The adjacent valley fill then provides an area to cast the first pit. Looking at Figure 3 notice the dragline has mined the first pit, placing the spoil on the adjacent fill area. Figure 4 shows that some of the subsequent pits have been mined, and the dragline has completed work on about half the mining area. Finally, Figure 5 shows the regraded section after the mining is complete. Notice how the spoil piles have been leveled and the outslopes are graded and benched. The resulting topography is not as steep as the original but the general trend of high and low areas has not changed.

Figure 6 illustrates the "plan view" of a potential mining area. The seam outcrops are marked. Figure 7 shows the appearance of the same area after the overburden is removed down to the 5-block seam

Figure 1
ORIGINAL SECTION

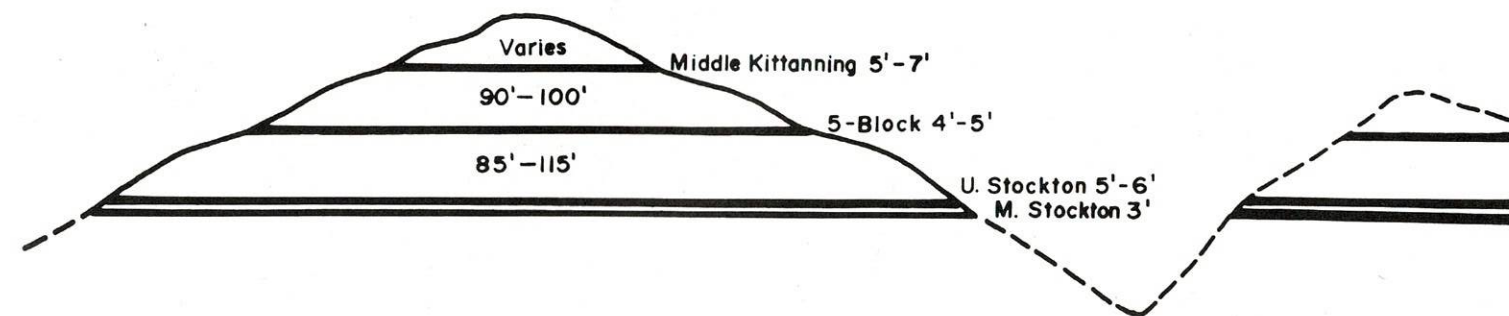
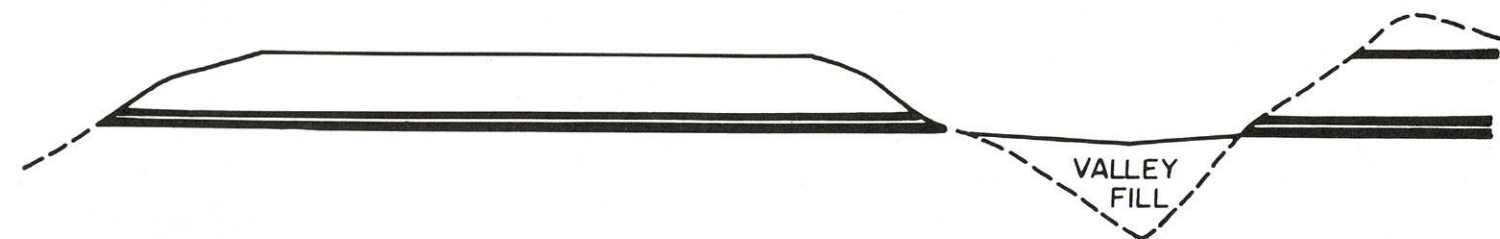


Figure 2
UPPER SEAMS REMOVED TO 5-BLOCK LEVEL



and placed in the adjacent fills. Again, the 5-block bench becomes the flat working area for the dragline. Notice the map shows additional mining was done in three areas. These additional cuts are to the Stockton level. They create casting areas for the dragline in the absence of valley fills. In fact these are relief cuts made for the dragline with the loader/truck mining method. All the overburden from above the 5-block seam and the relief cuts, was incorporated into valley fills and dragline access ramp. Figure 8 demonstrates how the actual dragline pits are layed out. Pits are numbered consecutively, the arrows associated with the pit numbers indicate the direction of dragline movement and casting.

We have talked only generally about equipment assignments; let's

take a closer look. Loader/truck or shovel/truck mining methods are appropriate for overburden removal from the top of the mountain down to the 5-block. Larger bench widths and the greater volume of overburden, on the increment between the Middle Kittanning seam is more suited to the wheel-loaders/truck or shovel/truck method depending, of course, on their size and location. The parting between the upper and middle Stockton seams is normally thin (approximately 8 feet) and is a good candidate for the wheel-loader/truck method. A motorized shovel would not be desirable for use on the 8 foot digging face, further shovels lack the mobility to move quickly between pits. The dragline is best suited for the interval between the 5-block and upper Stockton seam.

Some assumptions were necessary for designing a mine plan. As the relative costs of overburden removal by different types of equipment were considered. These assumptions were, of course, elaborated on with respect to the economic evaluation of the overall project. However, this is not a part of this discussion. Ashland's management and engineers assumed that the dragline would operate at 50 percent, or half the cost of the wheel-loader/truck procedure. Wheel-loader/truck method was used as the basis for comparison because most of Ashland's existing cost data was generated using that type equipment. Using these criteria the decision was made to maximize the amount of overburden to be removed by the dragline, and to utilize the shovel/truck process on the greatest portion of overburden.

Figure 3
BEGINNING DRAGLINE OPERATION

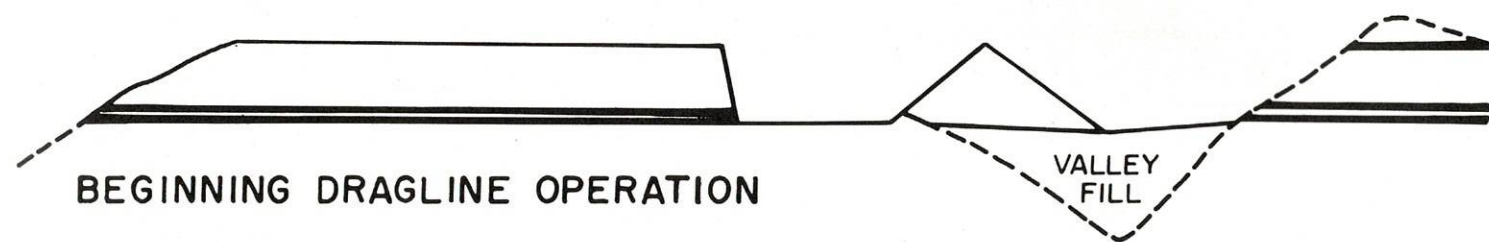


Figure 4
BEGIN REGRADING

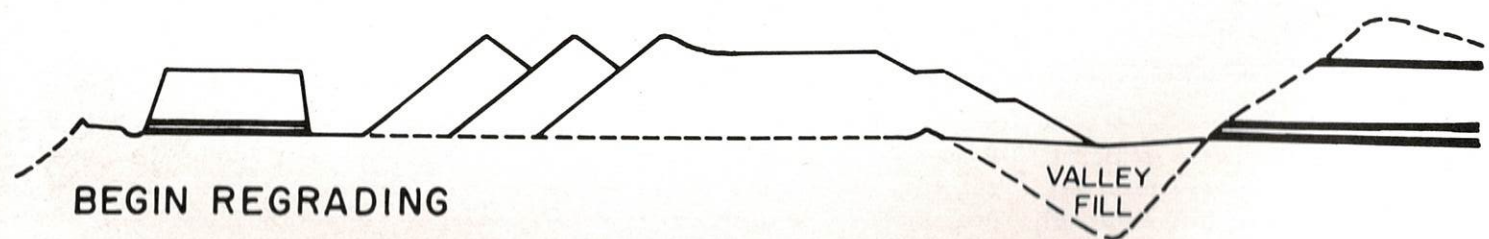


Figure 5
REGRADED SECTION

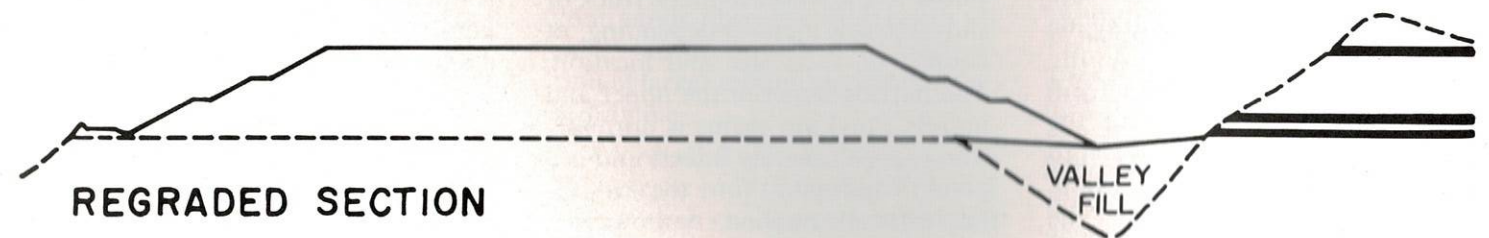


Figure 6
VIRGIN MINING AREA



Figure 7
AREA DEVELOPED FOR DRAGLINE MINING

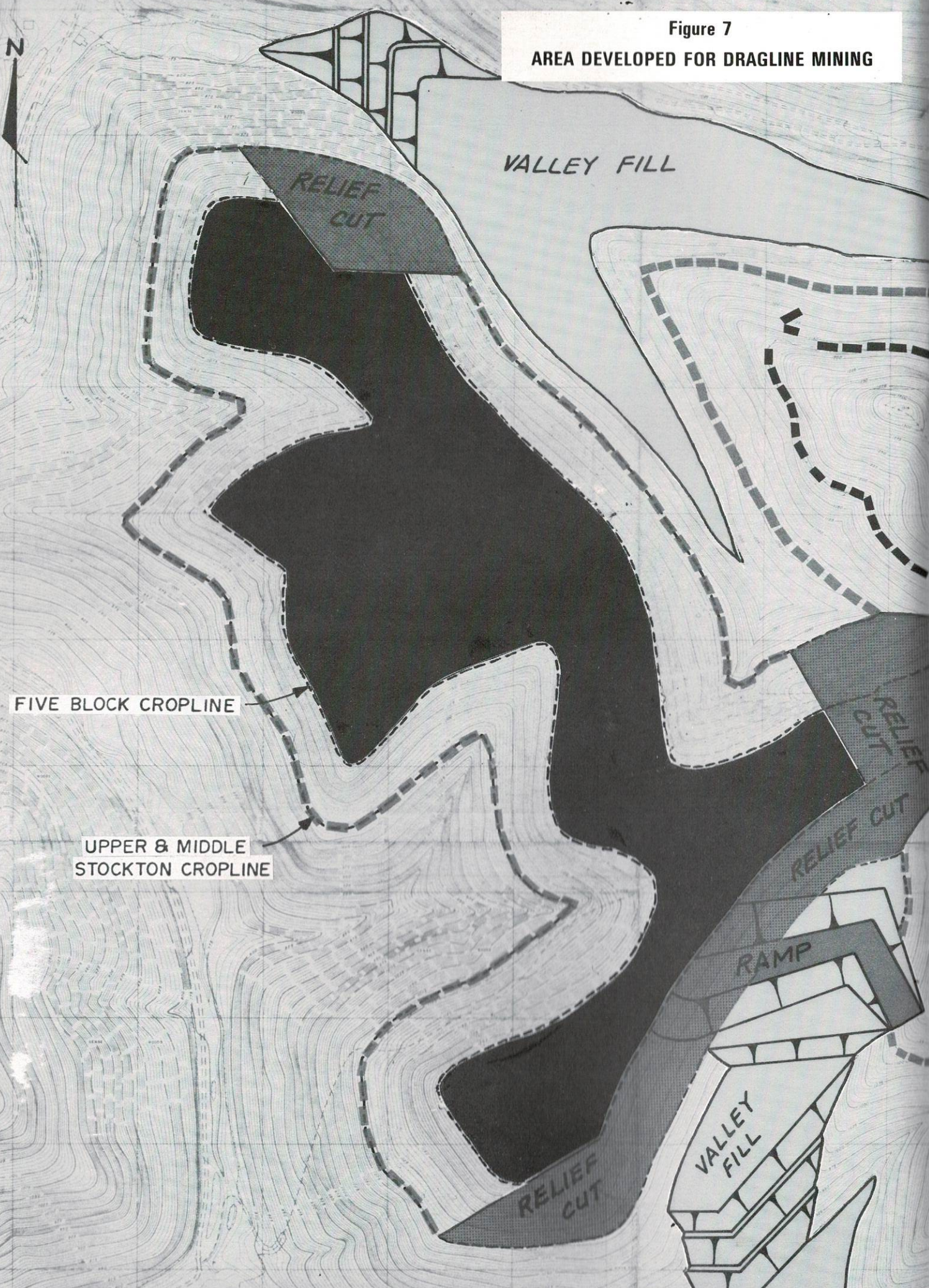
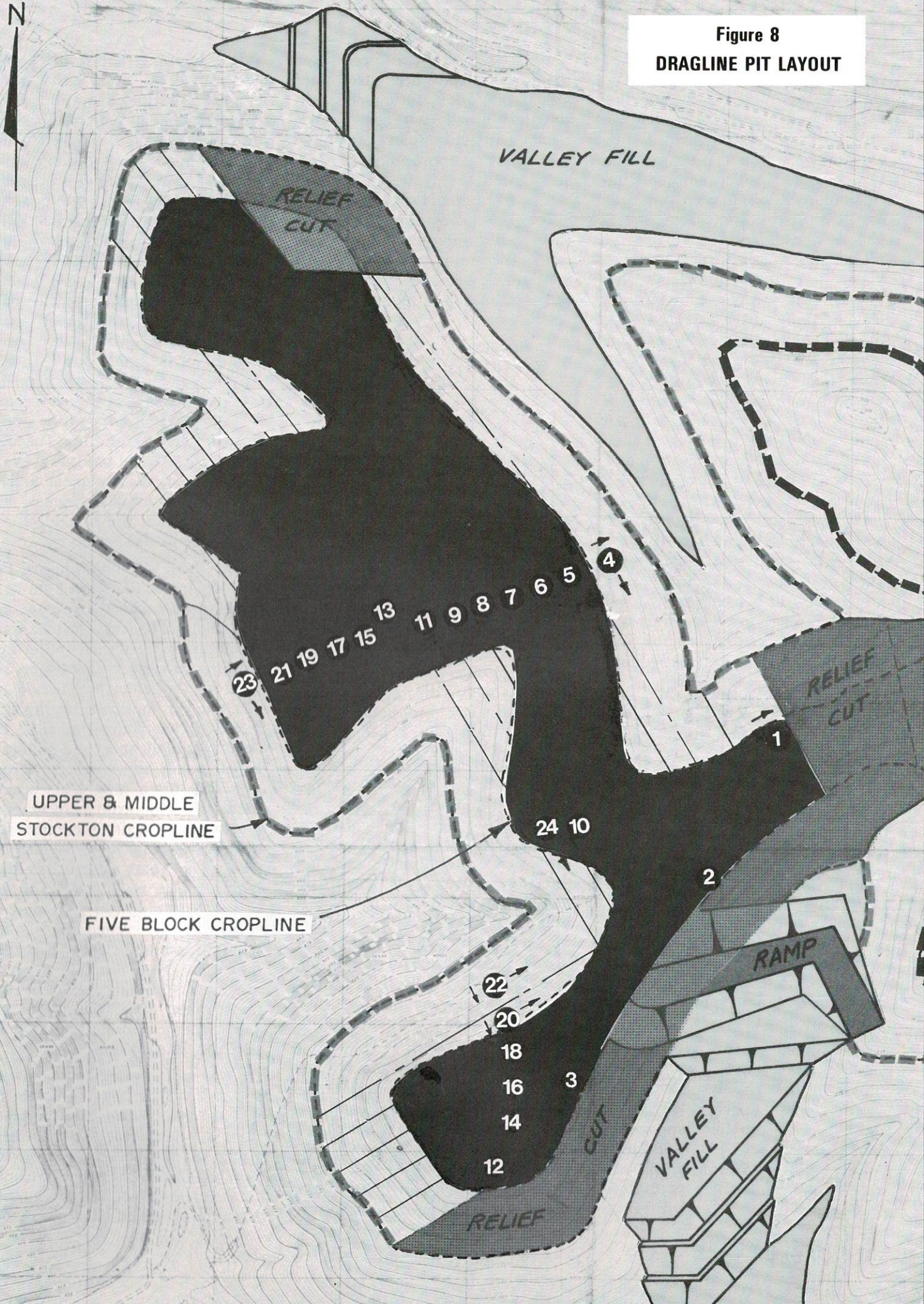


Figure 8
DRAGLINE PIT LAYOUT



Approximately 10 thousand acres of coal bearing land was required for the 20-year mine life, and that roughly measures about 5 miles x 3 miles. The area was divided into acres by topographical characteristics. Figure 8 in fact represents the first mining area that was examined, and it is typical of all the area. The general rule of design is to maximize pit lengths and strategically locate valley fills to accept initial cuts. This minimizes the number of relief cuts, leaving more overburden for the dragline. Notice that where pit lengths are short, the machine is alternated between pits to allow adequate time for coal and parting removal. The ramp shown is set on a 6 percent grade and provides dragline access to the 5-block elevation and later it serves as the exit ramp, when mining is completed. Grade changes such as these are necessary only three times in the mine life. After the third area is mined the machine stays at the 5-block level. The dragline has a one mile walk between the first and second mining area — the walk will require approximately 24 hours. All other mining areas are contiguous.

After the mine layout was completed, each area's overburden was categorized into dragline work and conventional (shovel/truck or loader/truck work. Layouts include cut and fill balances for conventional mining and pit layouts for the dragline. The results of this examination appears in Figure 9. An overall mining ratio of 10.01:1 is shown. The table also points out that 53 percent of the total overburden could be moved with a dragline. All parting between the upper and middle Stockton seams is included with the conventional equipment work scenario.

For annual mine production of 2 million clean tons at 79 percent recovery, through the preparation plant, the numbers in Figure 10 apply. The dragline application could effect up to 13,430,900 bank cubic yards annually of the 25,341,300 bank cubic yards total requirement.

Since the annual production requirements have been determined we can now look at dragline sizing, actually, initially a range of sizes. Each manufacturer of walking draglines offers an appropriate model to accommodate Hobet's requirements. Each model is available with various bucket-boom configurations to suit different mining conditions. Therefore, once a model was selected, we were still working with a range of bucket-boom options. The options were:

Bucket Size (BCY)	Operating Radius (Ft.)
65	309
72	296
76	269

First, I'll discuss annual production capabilities and then boom geometry. Figure 11 illustrates annual operating hour calculations for a dragline operation. Figure 12 summarizes dragline cycle calculations and calculates production capability per operating hour per bucket-yard. The appropriate annual production for the aforementioned option is shown in Figure 13. By this analysis the 76 yard option would seem most productive, but let us now consider boom geometry.

Boom Geometry is a function of pit geometry. Pit geometry is of course a function of pit width and overburden depth. The pit was assigned as 120 foot width to provide adequate width for coal and parting removal. Overburden depths (distance from 5-block to upper Stockton) vary over the mining areas and are represented in Figure 14. While the average depth is 92 feet the digging will dig as deep as 115 feet and as shallow as 74 feet. These extremes must be taken into consideration as well as the average depths.

Another factor affecting boom geometry is the blasting technique. Two techniques that could be applied are open-face and buffered. Open-face blasting would involve shooting only the width of the pit the dragline was digging. It would pro-

vide a solid highwall to dig against and provide for some cast yardage from the blasting operation. Problems associated with the method include the loss of bench height during shooting, and difficulties in sequencing blasting with the dragline movement along with coal and parting removal. Buffered shooting would be completed many pits ahead of the dragline therefore eliminating, to a great extent, the sequencing associated with open face blasting. This method maintains bench height and from experience, at the mine site, provides better fragmentation of material. In consideration of the above scenario it was decided to design the operation for buffered shooting. The high-wall angles Hobet used are ¼ to 1, the swell factor is 35 percent, and the spoil angles are 38 degrees. The machine center pin is held 40 feet from edge of the bench.

The three machine options, Figure 15, are demonstrated on a pit cross section with the average digging depth of 92 feet. The maximum reach capability of each option is the working radius less the 40 feet setback for the center pin. The 65 and 72 cubic yard options, digging at 92 feet, easily reach the spoil peak. But the 76 yard falls short and requires a bench extension. Any bench extension for this mining cross section requires a significant percentage of rehandle for the first increment as is demonstrated by the cross hatched area. The total bench extension required here was 2 feet. The first increment required 25 percent rehandle, the remaining 2 feet required an additional 2 percent rehandle. The total 27 percent rehandle is counterproductive and undesirable, thus making the 76 yard dragline option less productive than the 72 yard unit.

Moving up toward the maximum 115 feet vertical digging height the 72 yard machine reaches its limitations at 103.5 feet. To go higher would require a costly bench extension as mentioned earlier or to utilize the method pictured in Figure 16. Here the spoil line intersects the top

Figure 9 RESERVE ANALYSIS

	AREA	RAW TONS	OVERBURDEN (BCY)	DRAGLINE YDS.	PER-CENT	CONVENTIONAL YDS.	PER-CENT	DRAGLINE TONS	WORKING RATIO	CONVENTIONAL TONS	WORKING RATIO
1.		3,612,994	26,630,480	7.4:1	40.7	15,791,875	59.3	941,881	11.5:1	2,671,113	5.9:1
2.		4,140,627	39,629,676	9.6:1	65.0	13,247,011	35.0	2,303,577	11.2:1	1,837,050	7.2:1
3.		4,475,370	42,519,093	9.5:1	67.5	13,825,464	32.5	2,507,790	11.44:1	1,967,580	7.03:1
4.		1,456,140	12,379,100	8.5:1	51.0	6,062,439	49.0	643,250	9.82:1	812,840	7.46:1
5.		711,200	6,403,800	9.0:1	40.0	3,862,133	67.6	207,273	12.26:1	503,928	7.66:1
6.		389,700	3,135,508	8.05:1	83.0	547,308	44.1	249,700	10.37:1	140,000	3.91:1
7.		1,486,912	9,125,000	6.14:1	64.7	3,225,000	35.3	522,559	11.29:1	964,353	3.34:1
8.		959,012	9,297,367	9.69:1	74.0	2,417,315	43.3	534,982	12.77:1	424,030	5.70:1
9.		2,902,800	25,281,927	8.71:1	53.0	11,882,505	53.3	1,384,152	9.70:1	1,518,648	7.85:1
10.		1,913,200	15,156,749	7.92:1	64.0	5,456,429	48.3	922,511	10.44:1	990,689	5.51:1
11.		1,015,398	10,358,244	10.20:1	35.7	6,663,800	64.3	253,141	14.59:1	762,257	8.74:1
12.		1,831,560	18,751,103	10.24:1	50.6	9,255,732	49.4	746,411	12.72:1	1,084,149	8.53:1
13.		1,160,215	9,590,356	8.27:1	72.7	2,615,314	27.3	590,755	11.81:1	569,460	4.59:1
14.		1,221,825	10,443,565	8.55:1	71.9	2,933,010	28.1	665,475	11.29:1	556,350	5.27:1
15.		4,428,300	40,877,279	9.23:1	52.0	19,621,093	48.0	2,255,040	9.35:1	2,173,260	9.03:1
18.		4,528,559	50,664,030	11.19:1	45.3	27,719,586	54.7	1,822,853	12.59:1	2,705,706	10.20:1
19.		1,446,920	12,445,530	8.60:1	69.0	3,859,114	31.0	784,080	10.95:1	662,848	5.82:1
20.		7,519,750	90,612,410	12.00:1	45.6	49,269,873	54.4	2,710,371	15.25:1	4,809,379	10.42:1
21.		2,638,261	45,670,120	17.30:1	39.8	27,461,787	61.2	674,844	26.98:1	1,963,417	13.98:1
FINAL TOTAL		47,838,743	478,971,337	10.01:1	53.0	225,116,528	47.0	20,720,640	12.18:1	27,118,099	8.30:1

Figure 10
GENERAL EQUIPMENT REQUIREMENT

Production Requirement (Clean Tons)	2,000,000
Average Plant Recovery	79%
Raw Tons Required (2,000,000 ÷ .79) . .	2,531,600
Overburden Ratio	10.01:1
Total Overburden Removal Requirement . .	25,341,300
Maximum Dragline Percentage	53%
Maximum Dragline Overburden Portion . .	13,430,900
Conventional Percentage	47%
Conventional Overburden Portion	11,910,400

Figure 11
DRAGLINE OPERATION HOUR CALCULATIONS

Calendar Time	8760
Vacation & Holiday	— 600
Unscheduled Time (P.M., Shift Change, Boom Inspection)	— 825
Scheduled Time	7335
Non-Controllable Delays (Strikes, Fog) . .	— 272
Controllable Time	7063
Electrical & Mechanical Delays (15%) . . .	— 1059
Operational Delays (20%)	— 1201
Productive Hours	4803

of the upper Stockton seam rather than the bottom of the middle Stockton as shown in Figure 15. The shifting of the spoil allows the 72 cubic yard machine to dig up to 115 feet. The 76 yard still required a bench extension; the 65 yard is of course adequate. This spoil shifting creates some rehandle in the coal pit by wheel-loaders, but the amount is relatively small. Also, referring back to Figure 14, only three of the mining areas would require a spoil shift for the 72 yard machine, so the other 17 can be mined without any rehandle.

As a result of studies like these

and consideration of the flexibility and conservation, it was determined the best suited machine option is the 72 cubic yard bucket with the 296 feet working radius. The unit has an annual operating capability of 12,646,500 bank cubic yards. Although this is less than the 13,430,900 bank cubic yards possible as shown in Figure 10, the move up to the next larger model machine is great, in both size and cost. The result would be a machine far too large for the application.

Considering the 25,341,300 bank cubic yards total requirement for the

Figure 12
DRAGLINE CYCLE CALCULATIONS

Drag Time	15 Seconds
Loaded Swing	20 Seconds
Dump time	3 Seconds
Empty Swing	18 Seconds
Preparation to Drag	3 Seconds
	59 Seconds
Swell Factor74
Bucket Fill	90%
Operator Efficiency	90%

Yards/Hour/Bucket—Yard =

$$60 \text{ Sec/Min} \times 60 \text{ Min/Hr} \times .74 \times .90 = 36.57$$

59 Sec/Cycle

Figure 13
DRAGLINE PRODUCTION CAPABILITIES

WORKING RADIUS	BUCKET SIZE	OPERATING HRS/YR.	YARDS/HR./ BUCKET-YD.	BCY/YR.
269	76	4803	36.57	13,349,100
296	72	4803	36.57	12,646,500
309	65	4803	36.57	11,417,000

mine then the conventional portion becomes 12,353,500. As a result of the above exercise maximizing the shovel/truck portion was discussed. It was decided to use that method. The physical limitations are basically the amount of overburden between the 5-block and middle Kittanning seams and the amount of overburden in Stockton seams relief cuts. These relief cuts are large enough to accommodate a shovel. This number for the 20-year mine life is 140 million bank cubic yards or 7 million bank cubic yards per year. A 27 yard loading shovel meets

this requirement on a 5 day - 3 shift schedule as indicated in Figure 17. The machine is matched with 120 ton haulers.

The remaining conventional yardage is left for 12½ yard and wheel-loaders teamed with 80 ton trucks. These units provide the mobility and flexibility to make the small relief cuts, pull partings, and perform general support work for the larger equipment. Four such units are necessary on a 5 day - 2 shift schedule to complete the overburden removal requirement. Annual production per loader unit demonstrated in Figure 18.

Figure 19 summarizes the overburden removal equipment capacity. The total capability of the selected equipment meets the annual mine requirement.

The dragline, a Bucyrus-Erie 1570W, was purchased in February 1981. Erection was started in November 1981 and completed in March 1983. The machine walked off the erection pad March 26th and started digging on the 28th. The machine sets on a 66-foot diameter base, the walking shoes are 12 feet x 70 feet each. The working weight of more than 8 million pounds includes 1 million pounds of ballast. The boom 325 feet long on 35 degree hoist, the drag ropes are 3¼ inch diameter. Motor generator sets total 10 thousand h.p. Twenty-two thousand nine hundred volts A.C. enters the machine and is reduced to 6,900 volts A.C. in a 10 MVA transformer. The D.C. motors are as follows.

Drag . . . 4 x 1300 h.p.
Hoist . . . 6 x 1300 h.p.
Swing . . . 4 x 1045 h.p.
Propel . . 1 x 500 h.p. (per side)

Hobet's machine has 6 hoist motors rather than the standard 4 and 1045 h.p. swing motors rather than the standard 800 h.p. This optional equipment was added to ensure optimum cycle times in all situations. More specifically the amount of swing limiting and/or hoist limiting has been favorably reduced.

For the purpose of erection, a 130

foot long x 100 foot wide x 40 foot high steel building of rigid frame construction was built on wheels and rails over the site. The enclosure covered the base and revolving frame during welding, machining and equipment alignment. The wheels and rails allowed the building to be moved away from time to time allowing the 135 ton erection derrick to set the necessary parts in place. On completion of the revolving frame the building was moved away for the last time. The same structure now serves as a permanent four bay shop building approximately 400 feet from the erection pad. A 10 thousand foot office and warehouse was attached to complete the mines' new service complex.

An on-board computer was added to the dragline to monitor productivity and to track any delays. The associated computer console, in the operator's cab, visually aids the operator with machine positioning and monitoring cycle times. As different digging techniques are explored, the system will provide rapid documentation for comparison purposes. Component life can also be studied with the system.

The 27 cubic yard loading shovel is a Bucyrus-Erie 295 B11. Purchased in December 1981, the machine was placed in operation in July 1982 following a two month erection period. Machine electricians are Bucyrus' new static A.C. "Acutrol" system — it is the first such machine operating in the United States with General Electric components. The A.C. motors are as follows:

Hoist 1 x 1250 h.p.
Swing 2 x 225 h.p.
Crowd 1 x 225 h.p.
Propel 1 x 675 h.p.

The trailing cable voltage is 7200 volts A.C. The working weight is slightly less than a million and a half pounds. The boom is 52 feet high. Shovel benches are held to a verticle height of 45 feet.

Matched with the 295 B11 shovel are WABCO 120D haul trucks. The trucks provide a three-pass loading

match — the double back-in loading system is employed. The trucks were purchased with the 776 deep pit wheel option and extended range dynamic breaking to aid in safety handling the downhill hauls from the 5-block level to the fills.

Wheel-loaders for overburden removal are CAT 992C models. Equipped with 12½ yard buckets the units 4-pass load 85 tons CAT 777 end dump trucks.

The Mine's dozer fleet is comprised on CAT D10's, D9's and D8's. Spoil leveling is generally done with the D10's. The D9's are used on fills and drill benches.

Drilling varies in size dependent upon the application. Dragline drilling is done with a Marion M-3 unit equipped with a 10½ inch button bit and 60 foot drill pipe. Since maximum dragline overburden is 115 feet, the M-3 can drill all situations with only one steel change. The unit is equipped with Marion's automatic drill control system and operates on 7200 volts A.C. Drill patterns are normally 27 feet x 27 feet.

A Robbins RR10 drill is used with the shovel. Equipped with a 9-inch rotary bit and 25 foot drill pipe the machine drills on an 18 foot x 18 foot pattern. Driltech D40's and D50's round out the drill fleet and provide drilling for the loader units.

Coal loading is accomplished with both 998D and 992C CAT loaders. Coal shooting is unnecessary, the loaders break the coal from the seam quite easily because of the well established cleavage patterns.

Haulage is in 65 ton Cline and 85 ton Dart haulers. Tandems have been used rather than bottom-dump trailers due to the mile long grade at a 9 percent drop to the preparation plant.

Major equipment is listed on Figure 20.

Manning levels for the operator are summarized in Figure 21. Production for the 200 UMW surface mine employees will be approximately 40 tons per man-day.

Figure 14
AVERAGE OVERBURDEN HEIGHT FOR DRAGLINE AREAS

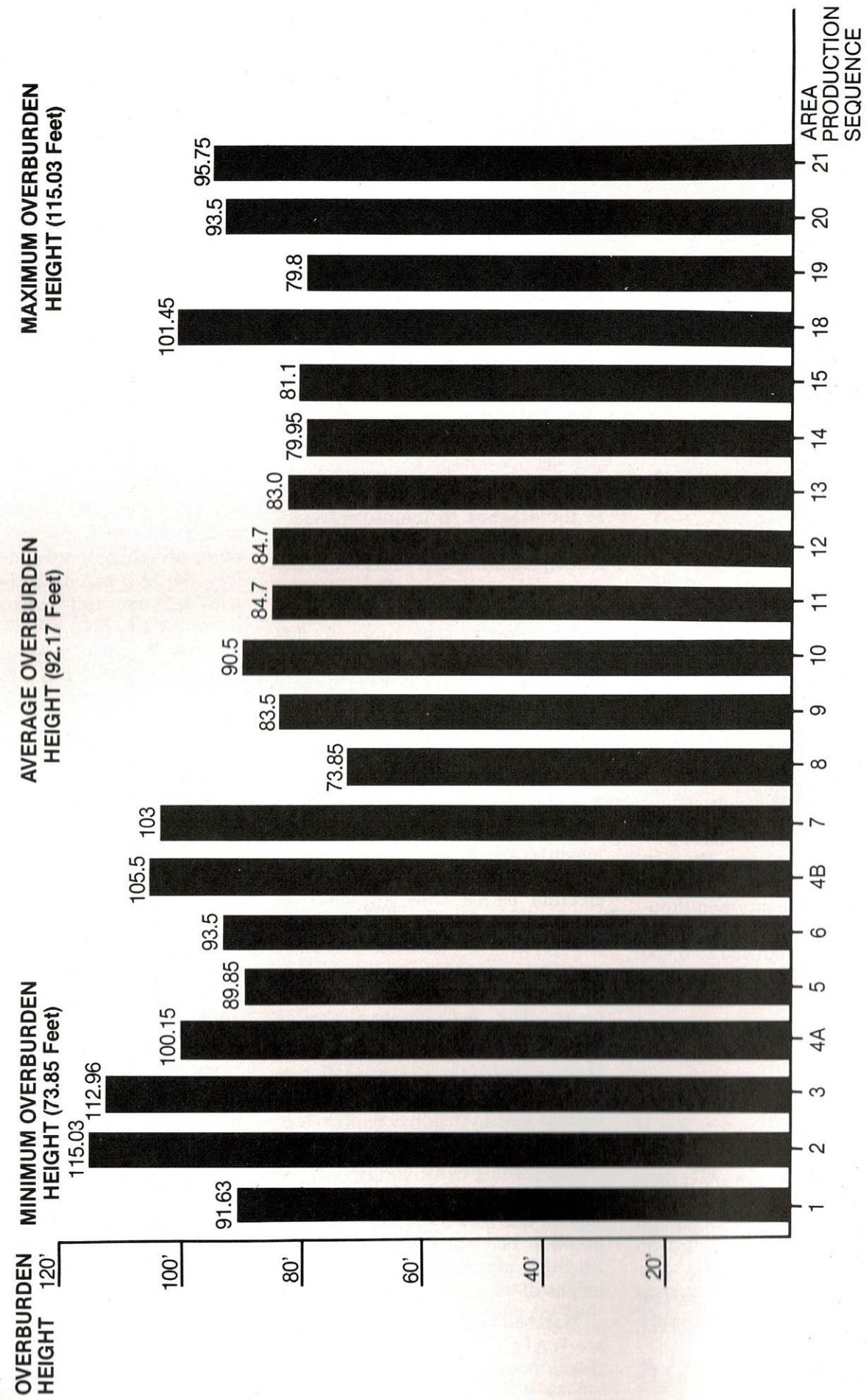


Figure 15
RANGING DIAGRAM
AVERAGE OVERBURDEN

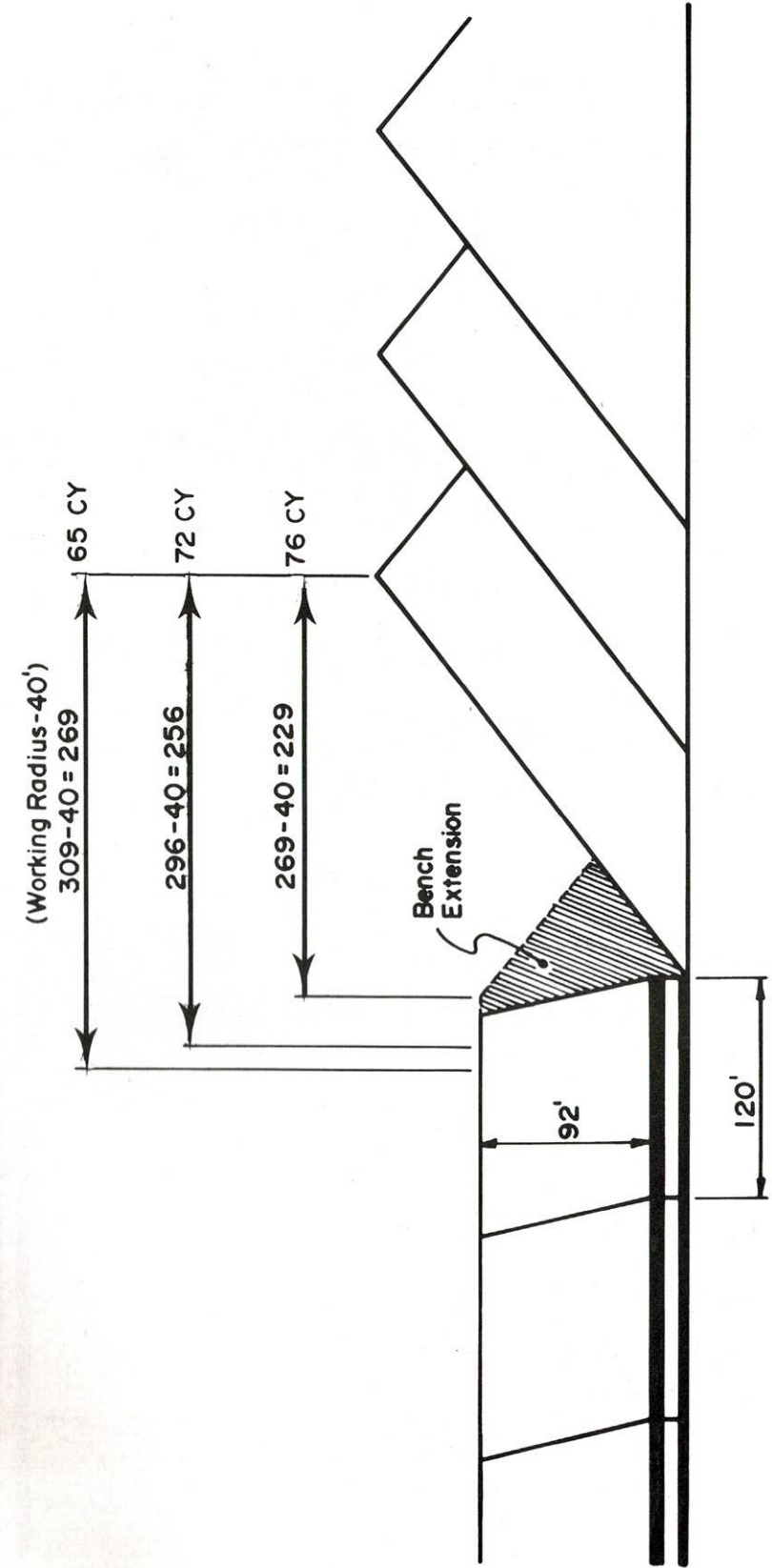


Figure 16
RANGING DIAGRAM
MAXIMUM OVERBURDEN

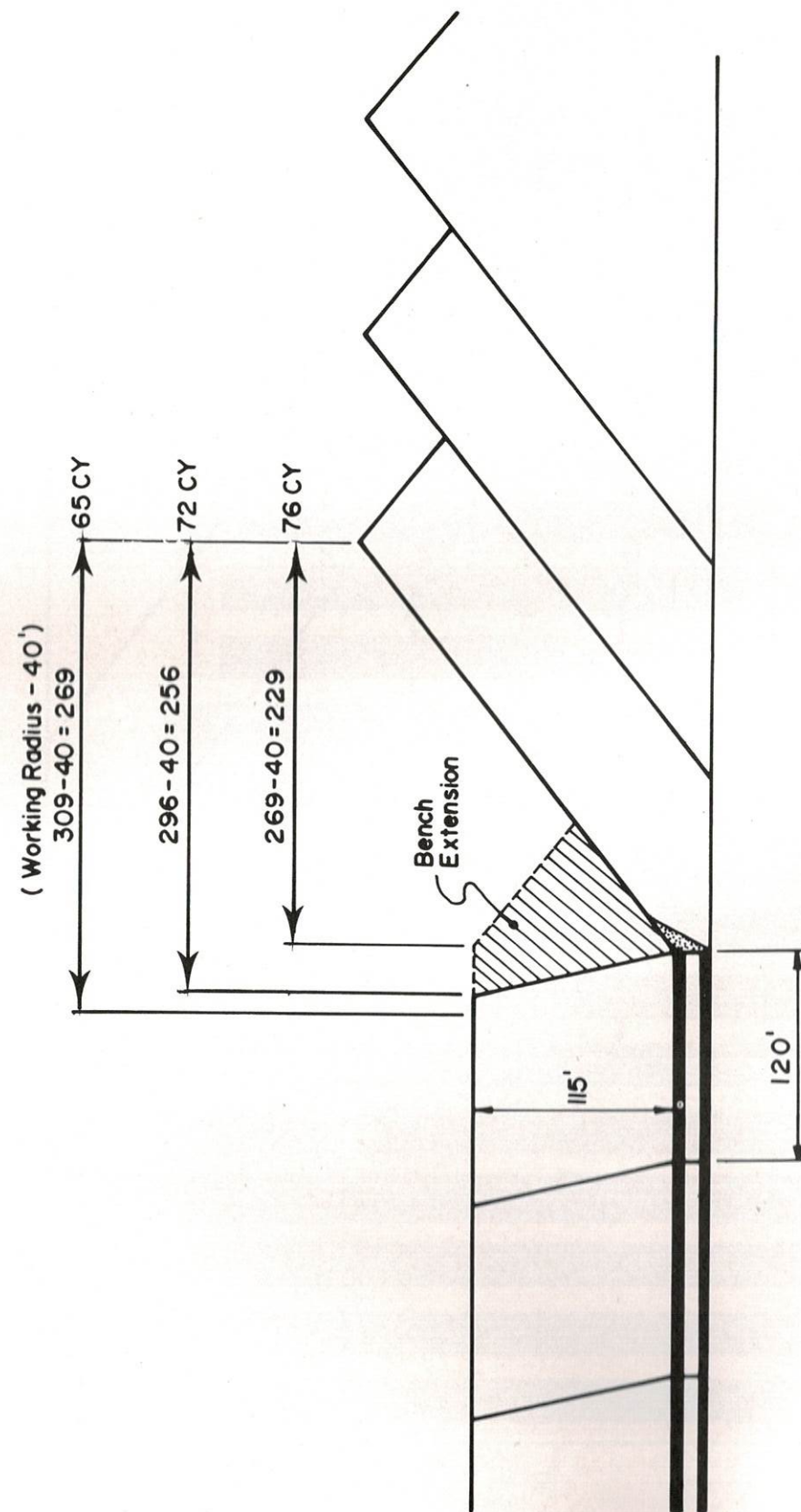


Figure 17
SHOVEL OPERATING STATISTICS

Calendar Time	8760
Vacation & Holiday	— 504
Unscheduled Time (Saturdays, Sundays, P.M.)	— 2696
Scheduled Time	5560
Non-Controllable Delays (Strikes)	— 72
Controllable Time	5488
Electrical & Mechanical Delays (15%)	— 823
Operational Delays (20%)	— 929
Productive Hours	3736
Bank Cubic Yards/Productive Hour	1849*
Annual Bank Cubic Yards	6,908,000

*Based on 1.75 Minute Cycles/120-Ton Truck, 59.9 BCY/Load, 90% Operator Efficiency.

Figure 18
WHEEL-LOADER OPERATING STATISTICS

Calendar Time	8760
Vacation & Holiday	— 504
Unscheduled Time (Saturdays, Sundays, 1 Shift/Weekday)	— 4416
Scheduled Time	3840
Non-Controllable Delays (Strikes)	— 48
Controllable Time	3792
Mechanical Delays (10%)	— 379
Operational Delays (20%)	— 662
Productive Hours	2751
Bank Cubic Yards/Productive Hour	575*
Annual Bank Cubic Yards	1,582,000

*Based on 3.5 Minute Cycle/80-Ton Truck, 39.5 BCY/Load, 85% Operator Efficiency.

Figure 19
OVERBURDEN REMOVAL EQUIPMENT LIST

No.	Item	Size	Annual BCY
1	B-E 1570W Dragline	72 Yd.	12,647,000
1	B-E 295 B11 Shovel	27 Yd.	6,908,000
4	CAT 992C	12½ Yd.	6,328,000
Total:			25,883,000

Figure 20
MAJOR EQUIPMENT LIST

72-Yard Dragline	1
27-Yard Shovel	1
10½ Inch Drill	1
9 Inch Drill	1
7½ Inch Drill	2
6¾ Inch Drill	2
120-Ton End Dumps (Overburden)	4
85-Ton End Dumps (Overburden)	15
7,000 Gallon Water Trucks	3
90-Ton Coal Haulers	8
12½-Yard Wheel-Loaders	5
8-Yard Wheel-Loaders	4
Motor Graders	3
Scrapers	3
Bulldozers	14

Figure 21
MANNING TABLE SUMMARY

UMWA Personnel	
Dragline	16
Shovel	6
Loaders (Overburden)	8
Rock Trucks	39
Dozers	26
Drills	17
Shooters	9
Graders	6
Water Trucks	6
Loaders (Coal)	6
Coal Trucks	20
Mechanics	17
Welders	10
Electricians	4
Utility	10
Total Surface Mine	200
Total Preparation Plant	29
Total UMWA	229
Salary Personnel	
Supervision	20
Clerical	12
Security	6
Total Salary	38

Serving the Coal Industry's Special Insurance Needs.

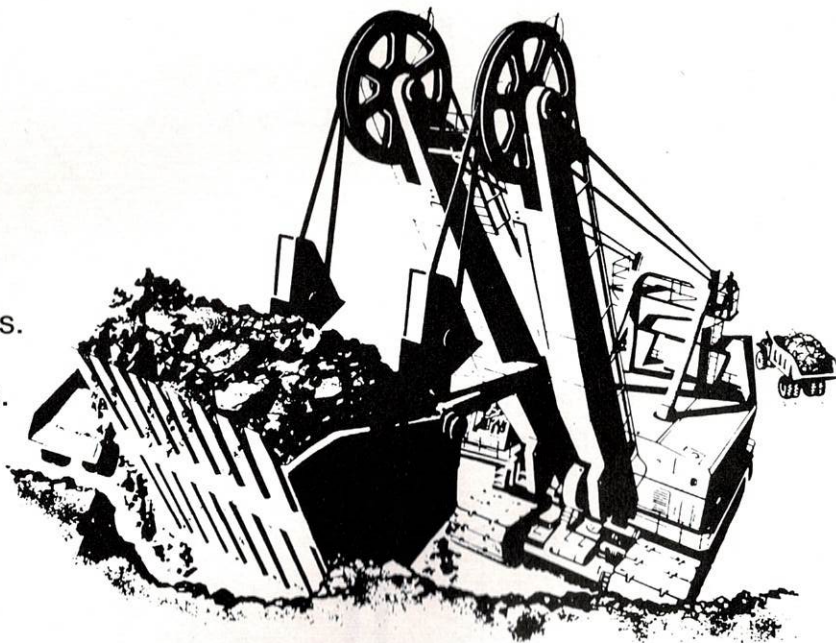
The coal industry is a very specialized field. Insuring the coal industry is also very specialized.

At McDonough Caperton Shepherd Group, we know how important it is to have the right kind of insurance coverage.

We've been serving the coal industry's special insurance needs for over 40 years. We have a staff of over 300 people to serve your insurance and bonding needs.

McDonough Caperton Shepherd Group also has in-house engineering and claims service. We can offer comprehensive insurance programs, designed specifically for coal operators.

To learn more about what we can do for you, call or write for a copy of our brochure, *Insuring the Coal Industry*.



**McDonough
Caperton
Shepherd
Group**



Corporate Headquarters:
McDonough Caperton Shepherd Group
One Hillcrest Drive, East
P.O. Box 1551, Charleston, WV 25326
(800) 340-0611



The Jasper Factory

During the past 40 years, Jasper has been serving the needs of the aftermarket industry. With satisfied customers, Jasper has grown to their present ultra-modern, 250,000 square foot facility in Jasper, Indiana, which is equipped with the most sophisticated machinery available and backed up by a loyal cadre of rebuilding specialists. All told, Jasper manufactures an average of 25,000 gas engines and 1,500 heavy duty diesel engines, as well as 13,000 transmissions and 1,200 differentials a year, to make it the World's Largest Mass Remanufacturer of Engines, Transmissions and Differentials.

West Virginia Branch

Our branch in South Charleston specializes in servicing the needs of the coal industry. We have available for immediate exchange the most popular Detroit Diesel and Cummins off-highway engines, including the 12V-149TI and KT-2300. Caterpillar D9H, 3208, 3406, 1160, and Komatsu D355, D455 are also available. All other units (Mack, International, Perkins, Case, John Deere, etc.) can be quickly turned around on a custom remanufacturing basis. Allison and Fuller Roadranger transmissions are a specialty at Jasper. We have a large inventory of the most popular 5860,

5960, 6061 and DP8961 Allison and heavy duty Fullers in stock for immediate exchange. Thus, we can reduce your costly downtime. For the customer who desires removal and installation at the job site, we have available field servicemen with fully equipped service trucks that have boom capacity up to 20,000 pounds.

Quality

Jasper's "by the book" procedures and adherence to O.E.M. specifications using new O.E.M. parts, enables us to supply a product built to provide continued and depend-

able performance. A complete Quality Control Program follows every product from disassembly to final testing.

Warranty

We guarantee each and every product with a Factory Written Warranty. We wouldn't have grown and prospered without satisfied customers. Consider the benefits of remanufacturing and how it can reduce costly downtime and increase profits. Then give us a call. We offer the two keys: Quality and Availability.



**102 D Street, South Charleston, WV 25303
Phone: 304/744-6378**

Division of Amherst Industries



Association Board Chairman Don Donell



A crowd of 400 turned out for the Annual Reclamation Awards Luncheon, closing the 10th Symposium.

10th Symposium draws 400

Hard times in the coal fields have an impact on just about everything the coal industry says and does.

A notable exception was January's Tenth Annual West Virginia Surface Mining Symposium, held at the new Marriott Hotel in Charleston.

The Symposium is an annual one-and-a-half day gathering of experts, regulators, and other coal industry people, for the purpose of disseminating and gathering information pertinent to the functioning of the industry. More than 400 such individuals turned out for this year's event. But that didn't surprise Ben Greene, president of the sponsoring West Virginia Surface Mining and Reclamation Association.

"Over the years, this symposium

has been one of our best vehicles for keeping industry people up-to-date on factors which affect their business," Greene commented. "We gear our program to the most relevant material, and we have done well, I think, at keeping the cost down. With that in mind, attending the symposium is well worth the small investment in time and money. We expected an excellent crowd at this year's event, and that's just what we got."

As in recent years, the program included a lot of material generated by regulatory agencies. A notable difference this year was the de-emphasis on the words and wisdom of the federal Office of Surface Mining, which during the past year, has passed the baton of primacy back to the West Virginia Department of

Natural Resources. DNR personnel spent a lot of time at the podium, offering information on West Virginia's National Pollution Discharge Elimination System (NPDES) program, the Abandoned Mine Lands program, and a panel discussion of the state's newly proposed permanent program surface mining regulations.

In addition to DNR, the program included speakers from the U.S. Forest Service, the West Virginia Department of Mines, and West Virginia University's Division of Forestry, and Civil Engineering Department.

The symposium agenda also included technical presentations on acid mine drainage, and rock dump valley fill.



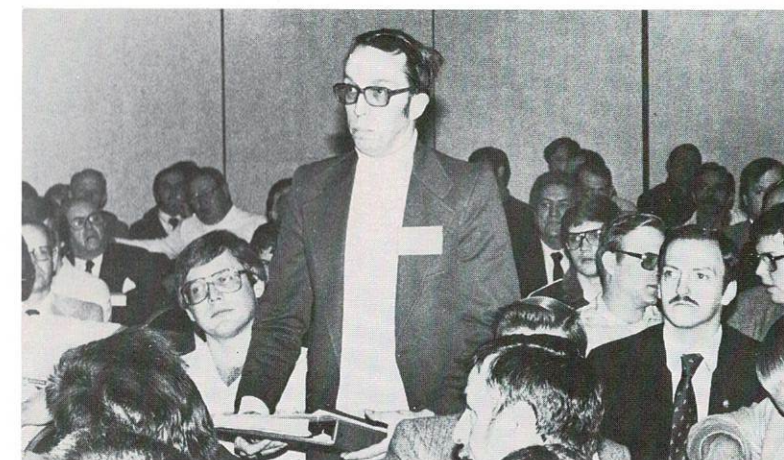
DNR Assistant Chief Bill Chambers



DNR Assistant Chief Roger Hall



Symposium guests register with staff members Mary Ann Steele and Bill Raney.



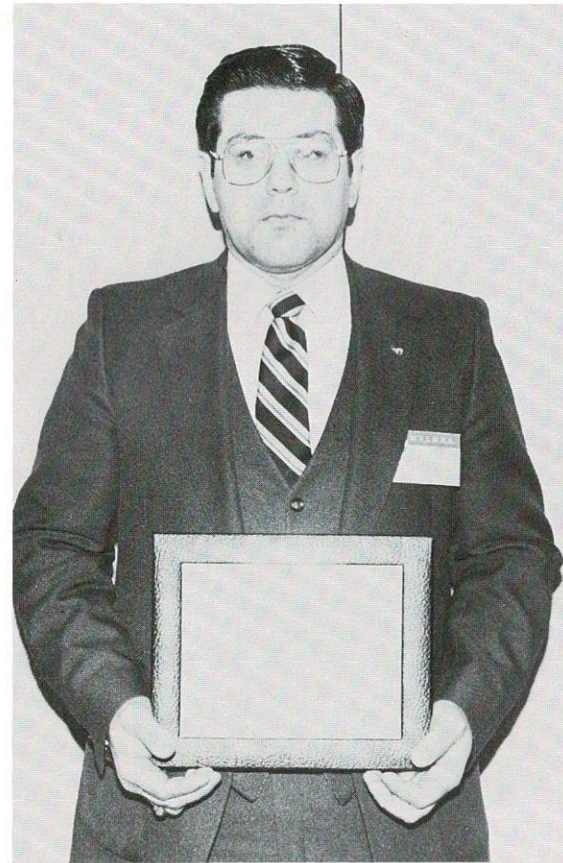
Presentations from the podium generated a lot of "audience participation."



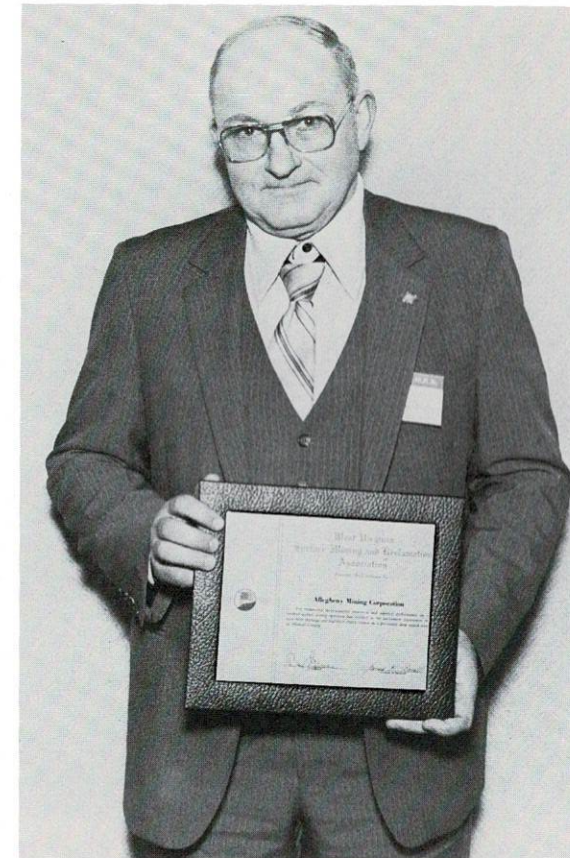
Association President Ben Greene presents DNR Assistant Chief John Ailes, Jr. with a memento of industry's fall softball triumph over State government.

MOUNTAIN ENERGIES

Special recognition for the diligent reclamation of more than 400 acres of previously-mined, abandoned areas and its successful restoration to productive pastureland as a positive contribution to the environment of Preston County.



Ron Yutzy—Mountain Energies.



Lawrence Streets—Allegheny Mining Corp.

ALLEGHENY MINING CORPORATION

For exceptional environmental awareness and superior performance on a modern surface mining operation that resulted in the permanent elimination of acid mine drainage and highwalls which existed on a previously deep mined area in Mineral County.

1983 Reclamation Awards

Twenty West Virginia Mining Companies have been recognized for excellence in mining and reclamation operations during 1982.

The awards highlighted the closing luncheon of the Tenth Annual West Virginia Surface Mining Symposium, sponsored by the West Virginia Surface Mining and Reclamation Association.

Presentations were made by Director David Callaghan of the West Virginia Department of Natural Resources, which co-sponsors the annual awards.

Outstanding mining operations are nominated each year by local DNR inspectors. Awards are made in surface mining, underground mining and "special recognition"

categories.

Association President Ben Greene thinks the awards are important to West Virginia reclamation. "These awards have, for some time, been part of our overall effort to recognize responsible mining and reclamation," he commented. "Coal companies take a lot of pride in such honors, and that holds true from the company president right through to the man running the bulldozer."

This year's honor list, selected from over 70 nominations statewide, includes 12 surface operations, four underground mines, and four more in the "special" category.

Not represented at the awards ceremony was Enviro Energy, Inc., which was recognized "For out-

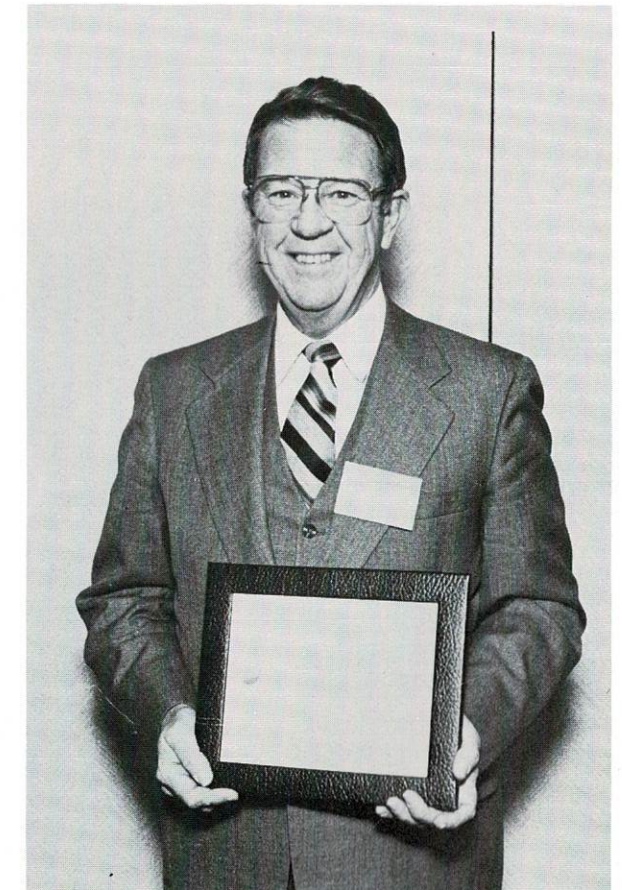
standing cooperation and performance in the development of underground mining operation, UO-245, exhibited by good housekeeping, exceptional revegetation, and superior water quality management so as to preserve the integrity of the environmentally sensitive area of Shaver's Fork in Randolph County."

The awards luncheon was attended by over 400 members and friends of the surface mining and reclamation industries.

Green Lands would like to add its recognition and congratulations to the winners pictured here, as well as the five dozen worthy companies which were also nominated for this year's awards.

HOBET MINING & CONSTRUCTION COMPANY, INC.

For outstanding managerial ability and overall performance in coordinating all aspects of this large scale operation so as to maintain environmental integrity while implementing a unique and revolutionary preplan that demands timely integration of concurrent reclamation and large volume overburden removal in order to facilitate the use of 72-yard dragline in the steep slopes of Boone County.



Bill Ritchie—Hobet Mining & Construction Co., Inc.

HANSFORD COAL COMPANY

For demonstrating exceptional environmental awareness in consistently providing dependable and effective drainage control, concurrent regrading, excellent revegetation, and reforestation efforts that result in high ratios of "first treatment" successes on operations in Kanawha County.



Ronnie Halstead (l), and Zenas Campbell (c), of Hansford Coal Co., accept award from DNR Director David Callaghan.

ED-E DEVELOPMENT COMPANY, INC.

For exhibiting the highest principles of land stewardship through the elimination of previously-mined highwalls and spoil piles, the installation of a permanent drainage system which will improve the future productivity of the area, and exceptional revegetation while mining in Monongalia County.



Paul Hanco—ED-E Development Co., (l) Inc., Director Callaghan.



Robert Billups—Elkay Mining Co., Inc., Director Callaghan.

Robert Billups-Elkay Mining Co., Inc.

ELKAY MINING COMPANY, INC.

For outstanding overall performance in the skillful use of a preplanned valley fill area, effective drainage control, excellent revegetation, and aesthetic improvement while developing and operating the bandmill underground portal, UO-616, in Logan County.



Jess Anderson (l), Brownie Stuart (c), of King Knob Coal Co. Inc., Director Callaghan.

KING KNOB COAL COMPANY, INC.

Special recognition for their interest in the future of West Virginia by emphasizing the long-term and beneficial use of surface-mined land through effective reclamation. Exceptional performance efficiently rehabilitated a previously mined, unusable hollow to a much needed recreational area for National Elementary School in Monongalia County.

TAMS COAL CORPORATION

Exceptional statewide recognition for extensive efforts and reclamation achievement in transforming an abandoned deep mine site and neglected adjacent area. Through dependable road reconstruction, positive drainage control, and excellent revegetation, the area has been rehabilitated to a modern mining complex for the future benefit of Raleigh County and West Virginia.



Paul Kizer—Tams Coal Corp. (l), Director Callaghan.

BERRY TRUCKING COMPANY

For positively demonstrating a sincere concern and understanding for environmental control characterized by effective "on-site" drainage control, slope stability, and concurrent revegetation in the construction and operation of underground mine, D-62-82, in Kanawha County.



Ted Berry—Berry Trucking Co. (l), Director Callaghan.



John Skidmore—Barbour Coal Co. (l), Director Callaghan.

BARBOUR COAL COMPANY

For overall excellence in supervision and performance as demonstrated by an emphasis on concurrent reclamation and regrading drainage control. Cooperative attention in reclamation has provided usable land that will greatly benefit future wildlife and agricultural needs of Barbour County.



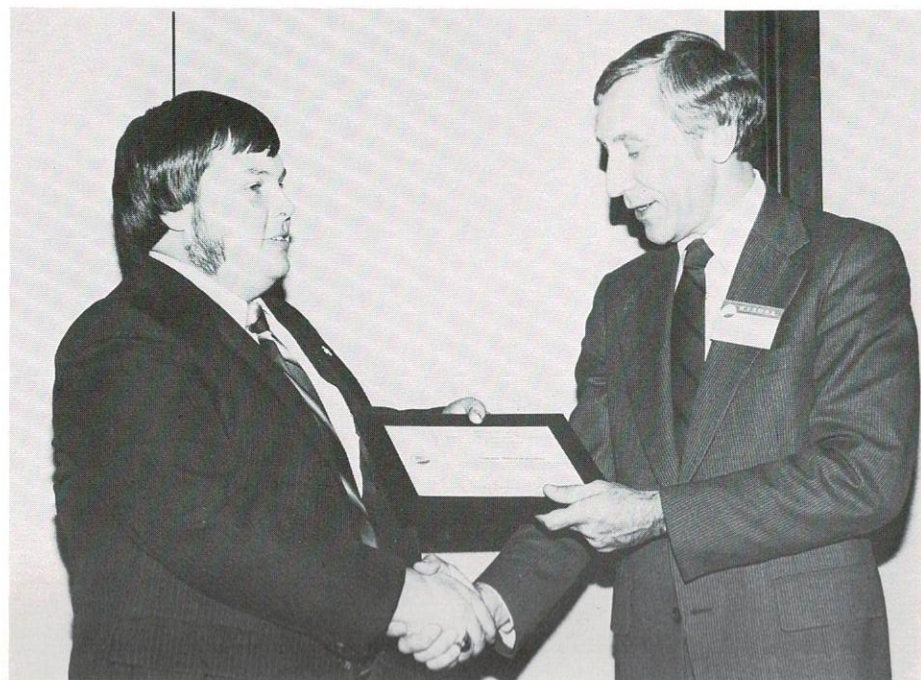
C. E. "Jim" Compton (l), James M. Compton—Nu-Way Mining Co.

NU-WAY MINING COMPANY

For the environmentally superior employment of sound mining practices in concert with the knowledgeable application of modern reclamation techniques on operations in Lewis County.

NATIONAL MINES CORPORATION

Special recognition for outstanding environmental control efforts characterized by exceptional regrading drainage control that featured hand-placed, grouted ditches and eliminated any possibility of potential acid problems, the effective use of topsoil and excellent revegetation on a coal refuse area in Wyoming County.



Dave Dancy—National Mines Corp. (l), Director Callaghan.

LAND USE CORPORATION

For exceptional performance in transforming a marginal site into a valuable and aesthetically pleasing area through modern surface mining practices that emphasized the use of existing topsoil, effective drainage control, and skillful haulroad construction in Nicholas County.



Ted Legg—Land Use Corp. (l), Director Callaghan.



Joe Turley, III—Leckie Smokeless Coal Co. (l), Leon Browning—Round Mountain Coal Corp. (c), Director Callaghan.

LECKIE SMOKELESS COAL COMPANY ROUND MOUNTAIN COAL CORPORATION—Contractor

For evident aesthetic and environmental improvement through outstanding haulroad construction and maintenance, exceptional drainage control, and "textbook" reclamation in the conduct of "recut" operations which eliminated more than 8,000 feet of previously-mined highwall in Greenbrier County.



John Kizer—Energy Enterprises, Inc. (l), Director Callaghan.

ENERGY ENTERPRISES, INC.

For outstanding reclamation accomplishment through superior drainage control and revegetation while conducting "recut" operations that eliminated more than six miles of abandoned highwalls and resulted in excellent habitat for a diversity of wildlife in Fayette County.

LYNN LAND COMPANY

For overall excellence in the conduct of traditional mountaintop/valley fill operations by the skillful employment of an innovative preplan based on the principles of sound engineering and future use. The outstanding reclamation provides the valuable commodity of flat, developable land in the steep terrain of Mingo County.



Terry Sammons (l), Bruce Burgess (c)—Lynn Land Co., Director Callaghan.



Phil Southern (l), James Bassel (c)—Treyco, Inc., Director Callaghan.

DAVIS TRUCKING COMPANY, INC.

For understanding operational control and conscientious reclamation performance during all phases of operation in the environmentally fragile area near Old Stony River Dam. The completed areas project the highest aesthetic qualities and will provide excellent wildlife habitat for this area of Grant County.



Steve Shaffer (l), Don Cussins—Davis Trucking Co., Inc.



Tony Petitto (l), Alfred Trevison (c)—Petitto Brothers, Inc., Director Callaghan.

TREYCO, INC.

For evident aesthetic and environmental accomplishment with particular attention to innovative drainage control, revegetation, and the rehabilitation of abandoned mined lands in the development of underground opening, UO-270, in Harrison County.

PETITTO BROTHERS, INC.

For the effective use of various drainage control measures and concurrent regrading to maintain the highest quality of water during all phases of haul-back and area mining operations on both previously-mined and unmined areas of Harrison County.

BECKWITH COUNTRY SKILLFUL!

Our part of the country is rich in resources. One of the greatest resources of all is our people. Skilled, hardworking people dedicated to getting the job done—well!

There's much productive work left to be done in our part of America. And we've got the people to do it. It's the responsibility of business, industry, labor and government to keep our people working... working to create the prosperity that has made our part of the



country the stable, productive place that it is. Our commitment here is demonstrated by the opening of our sophisticated Blawnox weld shop.

We're Beckwith Machinery Company, your Caterpillar Dealer. We provided the equipment that helped get it all started: mining the coal; building the factories; moving the material; improving the roads. We've invested seventy-five years in helping to build this part of the country and we're dedicated to keeping a good thing going.

BECKWITH 
Machinery Company
PITTSBURGH, PA • ALTOONA, PA • BRADFORD, PA • CLARION, PA
CLEARFIELD, PA • ERIE, PA • SOMERSET, PA • CLARKSBURG, WV
MATERIAL HANDLING DIVISION, N. VERSAILLES, PA
YOUR CATERPILLAR DEALER
Caterpillar, Cat and  are Trademarks of Caterpillar Tractor Co.

verdyol group

**we reclaim, restore, revegetate
disturbed land and mine waste**



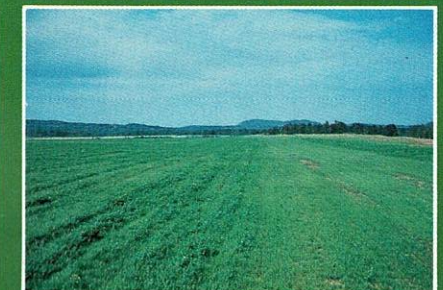
**for worldwide land
reclamation:**

Verdyol International AG
P.O.B. 261
CH-4123 Allschwil/Basle
(Switzerland)
Telex: 62665 verdyl
Telephone: 061/384727



for product supply:

Verdyol Mulch of Canada Ltd.
and
Verdyol Plant Research Ltd.
R.R. 1., Cookstown
Ontario L0L 1L0
Canada
Tel. 705 4589601



for mining research studies:

**Mine Waste Reclamation
Ltd.**
565 Massey Road
Guelph, Ont. N1H 6R1,
Canada
Telephone 519 8232060

If you want it green

Call Willco

**Reclamation and Hydroseeding • Landscape Seeding
Erosion Control**

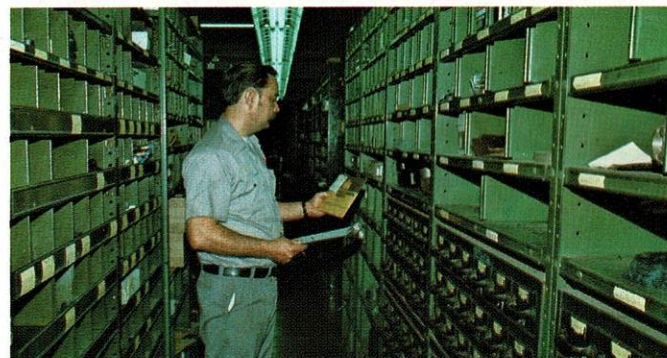


Ed Williams, President

WILLCO RECLAMATION, INC.

619 Open Rocks Rd. — Summersville — 304 / 872-2287

CONFIDENCE



IN A FULL RANGE OF SERVICES

Rish has an advantage over many construction equipment dealers. An advantage which has taken time to acquire. That advantage is experience.

For more than 50 years, Rish has been meeting the needs of its customers with a broad range of services. Services that have built customer confidence.

Rish is committed to the construction and mining industries by providing top lines of equipment and a support capability that few can equal. Parts, service, financing, engineering...these are capabilities which set Rish apart from the competition.

It's also something to remember when its time to replace a dozer, hauler, loader, paver, excavator, shovel, backhoe, or crane. With Rish you get more than equipment...you get a commitment.

Rish EQUIPMENT COMPANY

Airport Rd./U.S. 52 BLUEFIELD, WV	127 Pikeview Dr. BECKLEY, WV	Rt. 35 ST. ALBANS, WV
U.S. Rt. 50/Bridgeport CLARKSBURG, WV	Rt. 14/Vienna PARKERSBURG, WV	101 Frostburg Ind./Pk. FROSTBURG, MD



The Association's spring Board of Directors Meeting was held in conjunction with a visit to the State's congressional delegation in Washington, D.C. A highlight of the trip was a stop at the office of Jennings Randolph, the senior and retiring Senator from West Virginia. Flanking the Senator at his desk are Don Donell (l) and C. E. "Jim" Compton. Standing (l-r) are Bill Raney, Bill Ritchie, Rogers Stevens, Bill Forbes, Dave Porreca, Frank Vigneault, Dwight Keating, Jim White, Lawrence Streets, Ben Greene, Bill Butler, and Andy Teeter.

Association Notebook

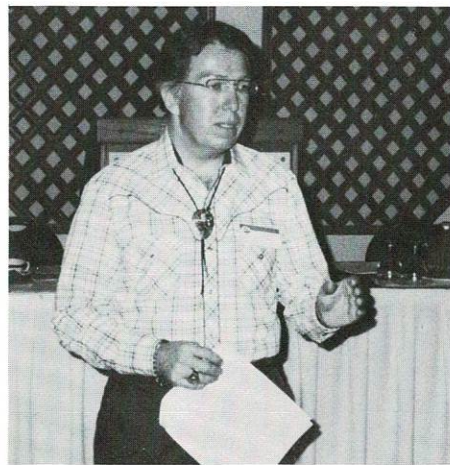
Important dates

Members and friends of WVSMRA are reminded of the following upcoming events on the Association calendar: July 24-29—Department of Natural Resources Interagency Evaluation Tour; August 11-14—1983 Annual Meeting of the Association; October 14-15—Fall meeting of the Association Board of Directors.

Further information on these and other important events will be forwarded to the membership as details become available.

Correction

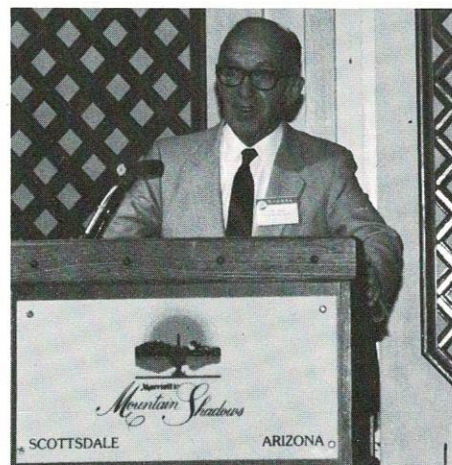
Our apologies to Arch Sandy, retired president of Barbour Coal Co., who was misidentified in the last issue of Green Lands. Arch and his wife built a home adjacent to a reclaimed mine which was part of a feature story in the winter edition. For this and his many other contributions to the industry, Arch certainly deserved better than to have his name confused on our pages with another man. Again, our sincere apologies.



Joe Lawson, SESCO Management Consultants.



Bob Esperti, nationally known tax lecturer.



Main speaker William L. Wearly, executive committee chairman, Ingersoll-Rand Co.

Semi-Annual Meeting

In a departure from its usual mid-winter southern swing, the West Virginia Surface Mining and Reclamation Association went west this year for its Semi-Annual Meeting.

Marriott's Mountain Shadows Resort in Scottsdale, Arizona was the meeting site for some 100 members and guests in late January.

The business session was highlighted by excellent presentations from Robert Esperti, nationally known tax lecturer, who spoke on estate planning and the Tax Reform Act of 1982, and Joseph W. R. Lawson, II, president of SESCO Management Consultants, who gave two presentations on employee relations.

The Association also took the occasion to welcome ten new members into its ranks, including Columbia Coal Gasification Corp., Ellen Sue Coals, Inc., Berwind Land Co., H.L. & A.G. Balsinger, Inc., Jeran Mining, Inc., Laurel Mining Consultants, Inc., Mellon Bank, N.A., Triad Engineering Consultants, Inc., Witco Corp., and SESCO Management Consultants.



Dick Welch of Beckwith Machinery Co. and C. E. "Jim" Compton of Grafton Coal Co.



Jack Highfill of T & J Industries, Inc. was the winner of the Sii Smith-Gruner Award for the longest drive during the golf tournament.



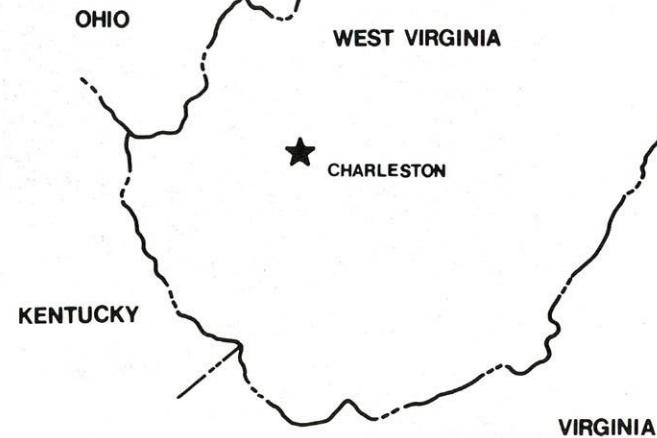
Tournament chairmen were recognized for the extra work which they put in on the recreational side of the gathering. From left to right are Frank Vigneault—men's golf, Mary Alice Vigneault—ladies' golf, and Greg Gorrell—tennis.



The Friday night "Fiesta party" provided a good time for visiting West Virginians of all ages. Shown at left are (l-r) Courtney Moran, Kelly Faltis, and Meredith Moran.



**MINING PERMITS & MGT.
ENVIRONMENTAL STUDIES
FEASIBILITY STUDIES
SAFETY PROGRAMS
OIL & GAS**



A E ASSOCIATES, LTD.
Architects-Engineers-Planners
1206 Virginia Street, East
Charleston, West Virginia
304-346-0505

Serving the Coal Industry for over 50 years



**Chamberlaine
& Flowers^{INC}**  **INSURANCE**

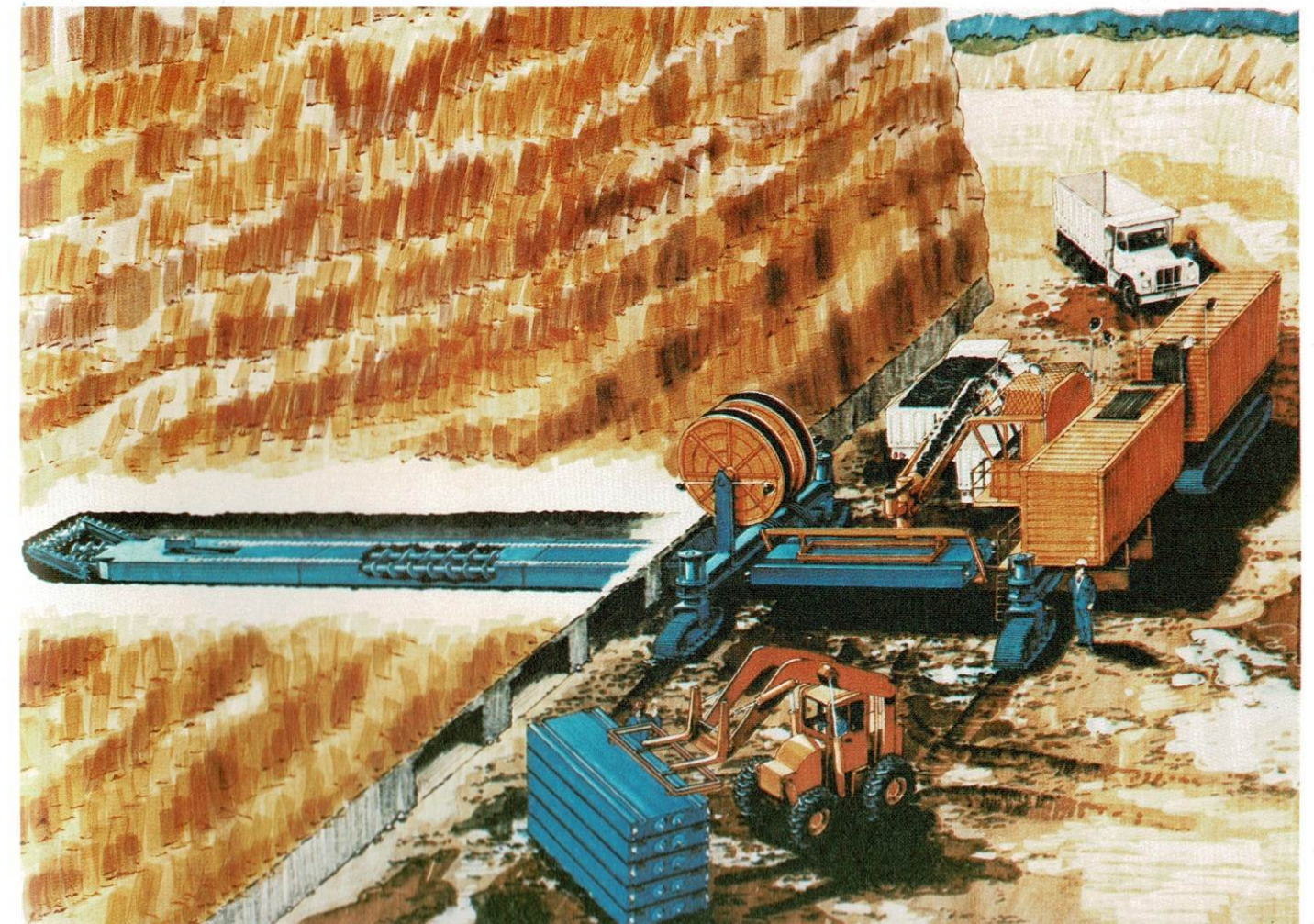
128 South Second Street
Clarksburg, West Virginia 26301
304/623-3721

114 High Street
Morgantown, West Virginia 26505
304/292-8454

18 West Main Street
Buckhannon, West Virginia 26201
304/472-2402



"TOTAL SERVICE is what we're all about"



**When you've reached
your limit...**

It's time to Advance to the Thin Seam Miner.

That's because the Thin Seam Miner (TSM) can recover up to 85 per cent of the coal you would otherwise leave behind when conventional surface mining has reached its economical limit.

The TSM moves onto benches where contour mining has left abandoned highwalls or where active mining is being completed. The TSM, with its rectangular cutterhead, is even being used to recover valuable coal that augers have left behind.

Moving along the bench under its own power, the TSM cuts 220 feet into coal seams ranging from 24 to 63 inches high. In a seam averaging 36 inches thick, the TSM can deliver up to 200,000 tons of coal a year. And that's **clean** coal, because the TSM's remote sensing devices guide the cutterhead through coal, not top or bottom.

To find out how the Thin Seam Miner can take you beyond your limits, contact the Director of Acquisitions at Advance Coal Management Corporation. Call toll-free nationwide at 800-354-9356 or in Kentucky at 800-432-0950, or Telex 213-424. (Also see the TSM story in the May 1982 issue of Coal Age.)

 **Advance Coal**
Management Corporation
805 Newtown Circle • P.O. Box 14014
Lexington, Kentucky 40512

