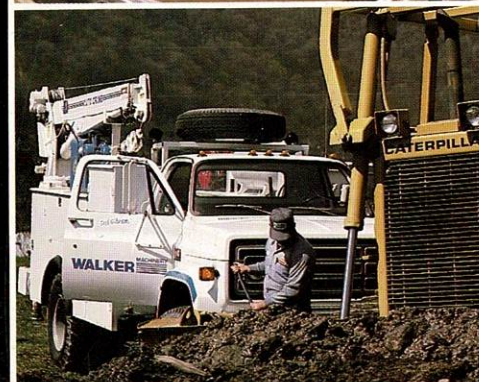
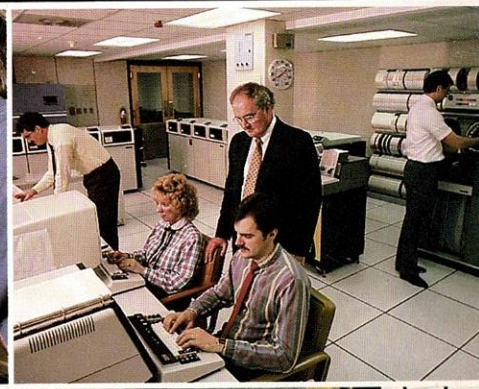


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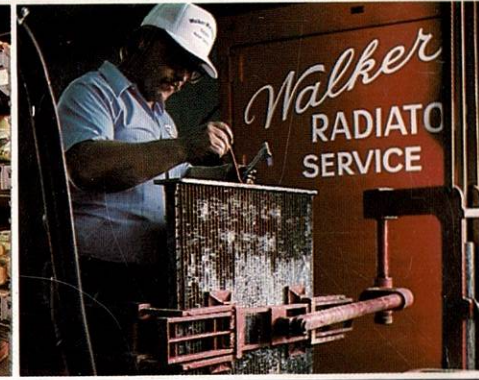
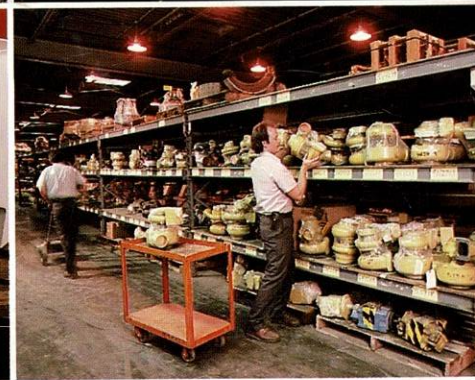
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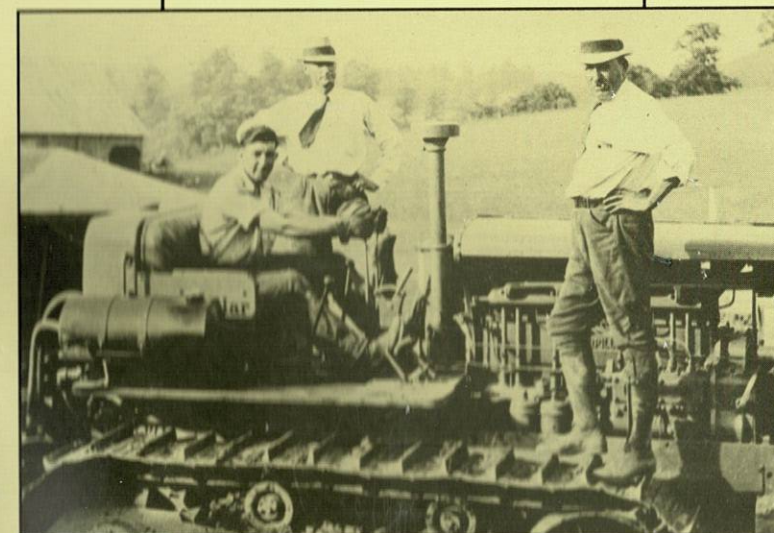
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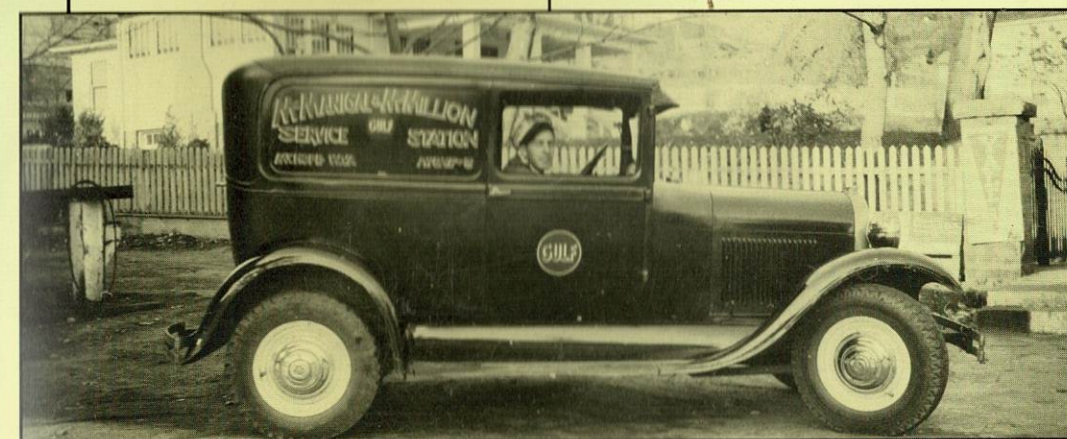
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# Green Lands

Fall 1988



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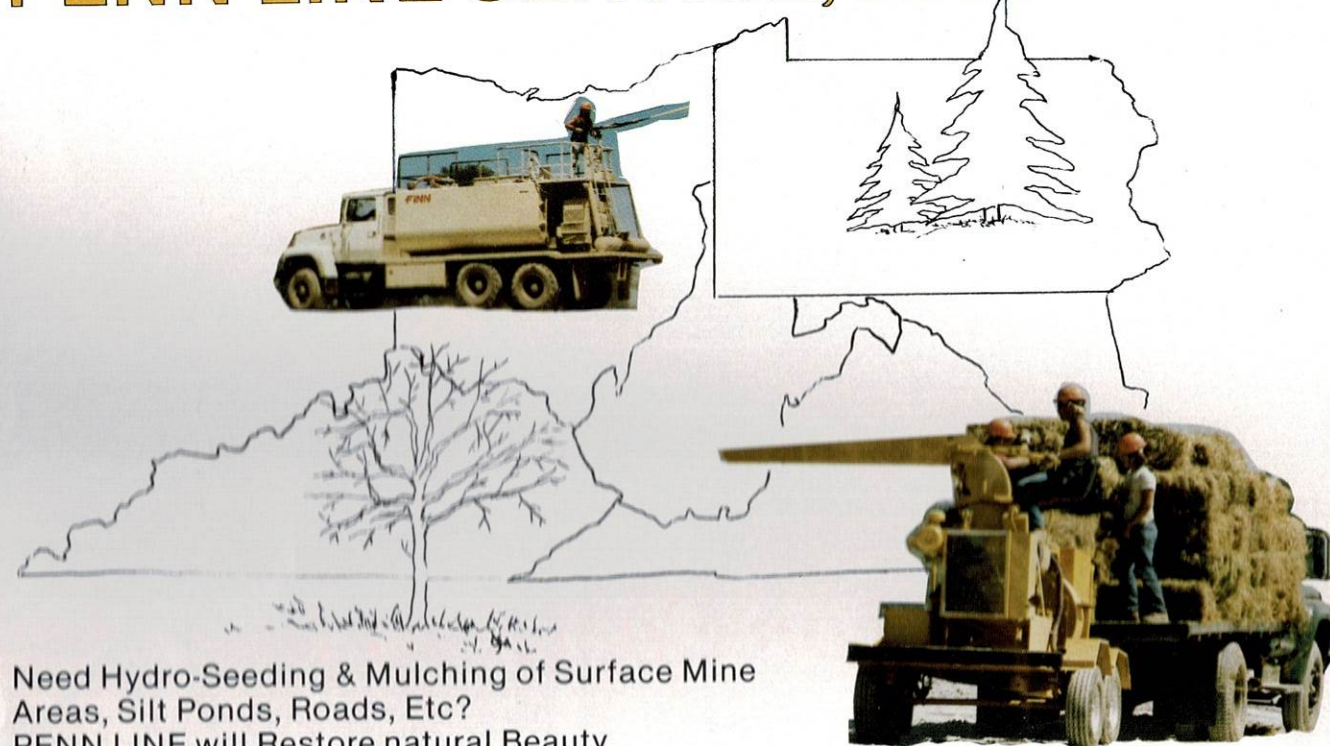
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Green Lands is a quarterly publication of the West Virginia Mining & Reclamation Association, with offices at 1624 Kanawha Boulevard, E. Charleston, West Virginia 25311 (304) 346-5318.



Times have changed in southern WV since Pat Graney, Enrico Vecellio and the Anderson brothers started their companies. But one thing is the same. All three companies are still around. See our cover stories, on pages 6, 13, & 17.

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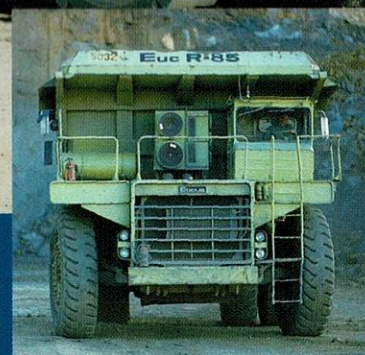
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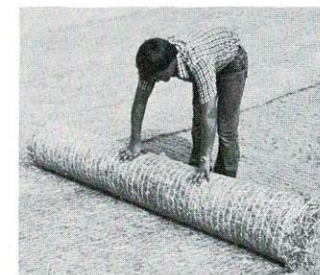


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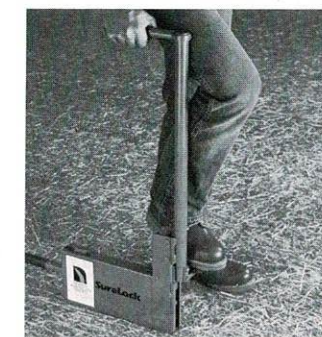
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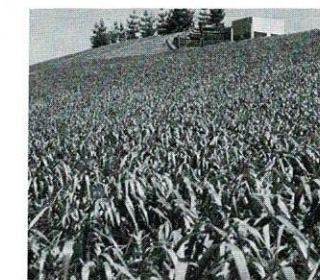
Starting at the top of the slope to be covered just unroll the Blanket. The Blanket should never be stretched so that contact with the soil can be maintained. Follow the simple instructions included with each roll.

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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.

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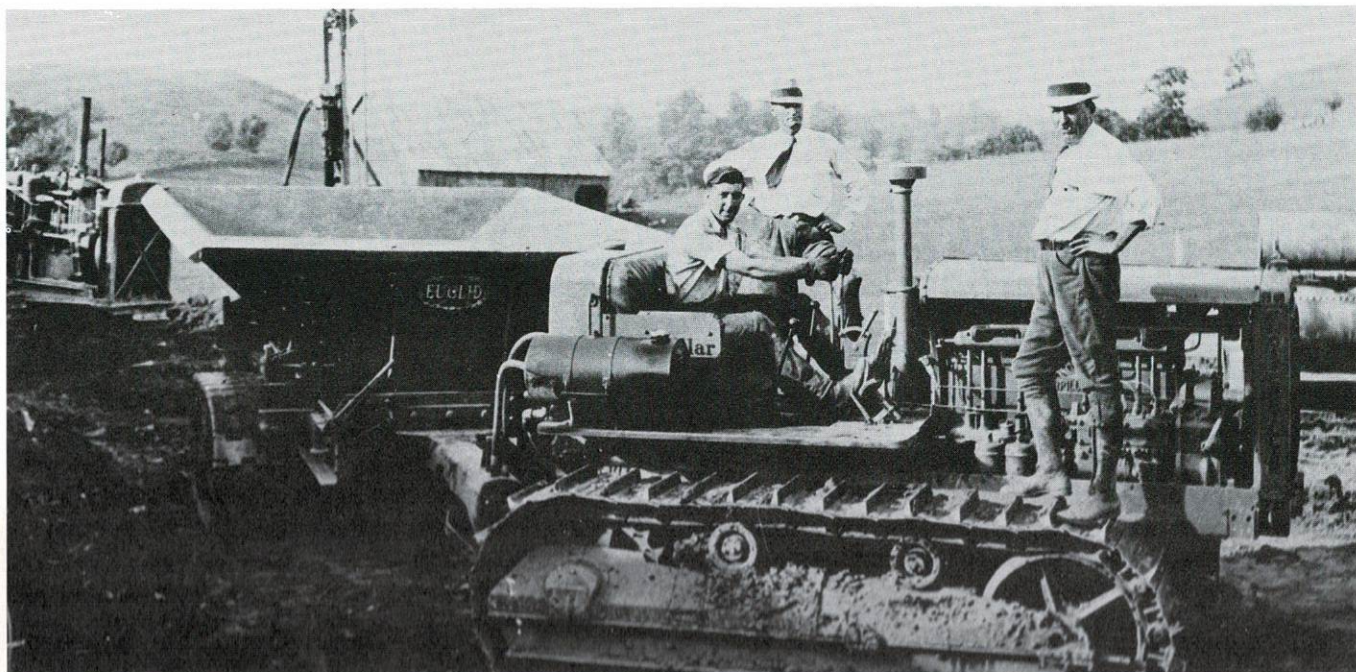
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On the job in the early days. Leo Vecellio at the controls with partners Eugene Grogan and Enrico Vecellio looking on.

# Vecellio & Grogan

## A West Virginia Success Story

As the history of West Virginia's coal and construction industries are written, a name that is certain to hold a prominent position is that of Vecellio & Grogan of Beckley, now completing its 50th year of operation.

The account of V&G is a classic West Virginia success story.

Vecellio & Grogan had its beginnings in 1938, when Enrico Vecellio started the business in partnership with his son Leo, and his son-in-law Eugene Grogan.

Enrico Vecellio emigrated from northern Italy to McDowell County in 1900 at the age of 22. He was a stonemason and had no trouble finding work, mostly in coal mine con-

struction. With hired labor, he built coke ovens for \$75 in 12-13 hours.

In 1909, he returned to his native village, built a home for his parents, married Ann Del Fivro, and returned to the U.S. Again he worked as a contractor, employing 20-25 other stonemasons.

Leo Vecellio was born in October of 1915 in Amherstdale, where his father was working in the newly developing Buffalo Creek area. In the 1916-1920 period, the elder Vecellio worked mostly on county roads and railroads in partnership with a cousin and others.

The family moved frequently, following the work from Ansted to

Elkview to Fairview, and finally, in 1930 to Beckley, where Mrs. Vecellio said, "This is it."

With that directive, an office was established on the old Crab Orchard Road near Beckley, and V & G's headquarters remain at that location today.

Leo Vecellio knew early on what he wanted to do with his life. He had tagged after his father at work, and later did odd jobs for the company at the rate of 10¢ an hour.

"I went with my father on the job at every opportunity. I came to think I was cut out to be a road builder. That's what my father was and that's what I wanted to be."

And that's what he became. He graduated from Virginia Tech with a degree in civil engineering in 1938, finding time along the way to play four years of Tech football and serve three terms as class president. He ended his collegiate years as president of of the Corps of Cadets.

With his degree in civil engineering, young Leo Vecellio went to work for Gilbert Construction, a company founded in 1934 by his father and two other men. All three had sons and each looked forward to bringing the next generation into business.

This was the impetus for the formation of Vecellio & Grogan, in 1938. Four years earlier, Leo's sister Erma had married Eugene Grogan, an employee of her father's.

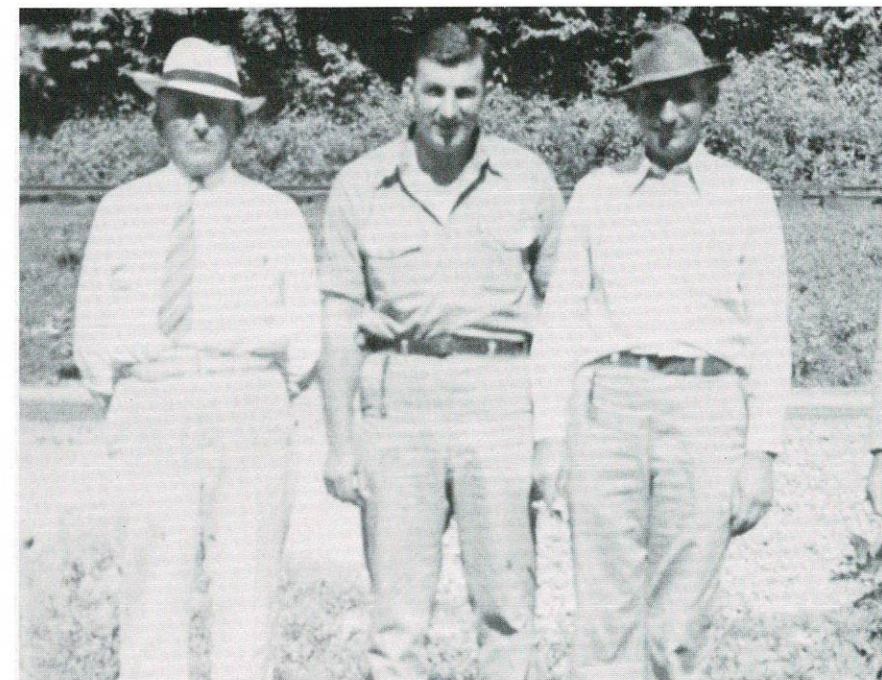
V&G was founded by Enrico Vecellio as a springboard for his son and his son-in-law. The three were equal partners, with the patriarch providing the capital, and the two young men shouldering the burden of running the new company.

Vecellio & Grogan got off the ground with a \$6,900 contract for street repair in Beckley. From that modest beginning, Leo Vecellio built his company into one of the giants in West Virginia industry, with a significant reputation nationally.

V & G got a good start, with an airport construction contract, some highway jobs, and a little railroad work.

Then World War II intervened and Leo Vecellio, with his ROTC background and a civil engineering degree, was needed elsewhere.

He was commissioned a second lieutenant with the Army Aviation Engineers and sent to the China-Burma-India theater to build roads, bridges, and air strips. He left the service at war's end with the rank of major.



The founders in 1940, l-r, Enrico Vecellio, Leo Vecellio, Eugene Grogan.



Lieutenant Leo Vecellio in Burma - 1943

"I remember my father visiting the job one day," he recalls. "He had been around coal mines most of his life, but he didn't really care all that much about them. His attention was always devoted to road building. That day, he was dismayed to see one of our bulldozers pushing a tree over. He didn't like to see any resource wasted, and I believe that thinking shaped my attitude toward reclamation later on."

"Of course in those days, the price of coal being what it was, you couldn't afford to do much reclamation. Later, when the price went up, we devoted a lot of time and money to land reclamation, and I'm proud of that."

Upon his return to Beckley, he began in earnest to build the business of Vecellio & Grogan. His father was retired by then, and Eugene Grogan died in 1949. That was also the year in which the company started its first mining job.

The company began to experience real growth in the 1950's. "I've had some very fine help," says V&G's president modestly. "Fil Nutter came here in 1950 and just did a tremendous job. During that period we got a little more into surface mining and augering."



When he left, Mac Smith came in, and he's still here. Again, a tremendous job. Mac pretty well runs things in Beckley now."

"In 1960," he continues, "we got Jim Justice, and our coal business really took off. That was the year we started Ranger Fuel. That company at one time was mining 3 and a half to 4 million tons a year. Sterling Smokeless came along in 1965. Then in 1970, we sold both companies to Pittston."

The 1960's was a period of major growth for V&G in road construction as well as mining. The company was heavily involved in West Virginia's interstate highway program, at one time moving up to 100,000 yards of material in a single day. By the end of the decade, V&G employed as many as 2000 people.

V&G was also at the forefront of the reclamation revolution. "Jim White and Shelby Jarrell joined us during that period," Mr. Vecellio recounts. "Later on they were the key men in our reclamation program. You know the laws started getting a lot stricter about that time, but we have always tried to be a leader in reclamation, and with Jim and Shelby, I think we accomplished our goals. When Congressman Morris Udall visited our Sullivan operation, right after the national law was passed, he said it was what he thought surface mine reclamation should be. That's a fine compliment to our people."

Leo Vecellio himself was a leader in the founding of what became the West Virginia Mining & Reclamation Association. In addition to his role as a founding father of WVMRA, he was the Association's first president and served for many years on the Board of Directors.



*Reclamation Supervisor Jim White with Governor Jay Rockefeller on the Sullivan operation. Congressman Morris Udall, author of national surface mining regulation, called this operation "an example of what reclamation should look like."*

In 1978, the V&G founder became interested in Florida. But he wasn't content to just build a winter home there.

In 1980, he established PAVEX Corporation from the assets of a previous company. PAVEX, which produces asphalt and contracts asphalt jobs, is now one of the largest companies of its kind in south Florida.

In 1983, White Rock Quarries was founded as a division of Vecellio & Grogan, mining limerock near Miami. Production began in 1987 and the company has quickly become one of the region's leading aggregate producers.

Vecellio & Grogan's Florida operations also include Ranger Construction Industries, Inc., of West Palm Beach, Ft. Pierce Contracting Corp., and Stuart Contracting Co.

On paper, a history of V&G seems like very smooth sailing. Leo Vecellio laughs at the thought.

"You know, I learned from my father to pay the workers first, and then the suppliers, and then yourself if there's anything left over. And that system has worked pretty well for me."

"But not every year has been a good one. We've used some red ink over the years."

"I will say that there is a feeling of accomplishment that goes along with this type of work. I can drive on Interstate 77 through Fancy Gap, Va. and remember when we did that job. There's great satisfaction in that."

He takes the opportunity to make another point. "I don't think enough credit is given in this country to the people who lay everything they have on the line every month. I don't mean just businessmen. I'm talking about farmers, truckers and all types of self-employed people with enough gumption to create something and to make something. I don't think enough is said about that."

Not that he doesn't appreciate his workers. "I wouldn't be anywhere without them. Any success we've had here must be shared with the people, hundreds of them, who have made this organization over the years. When I'm in Beckley, I still like to keep in touch with them. I've got one fellow in the shop here, if I don't stop down to see him, then he'll be at my office door, wondering what's the matter."



*Leo Vecellio with DNR Director T.R. Samsell - 1968, when Vecellio & Grogan won the first of its many awards for outstanding reclamation.*

The success of Leo Vecellio in the business world has been a tremendous financial boon, first to southern West Virginia, and later to south Florida.

But economic development is by no means all that he has meant to his home areas.

In memory of his father, and of his son Enrico, who died of leukemia at 18, Mr. Vecellio established the Enrico Vecellio Family Foundation in 1972.

"I'm very pleased with the Foundation," he admits. "We started with



*WVU's "Coal Man of the Year" - 1978*

a single scholarship for \$2000 a year and now we have 39 young people in college, both in West Virginia and Florida.

"The program is now self sustaining and it grows a little each year. The principle is never spent. Of course, we hope to add to it as time goes on."

The Foundation also supports some 35 other institutions, including the Boy Scouts of America and medical research on leukemia and eye disease.

Like the Foundation, the Vecellio family seems to be self sustaining. Son Leo, Jr. joined the operation in Beckley, and later followed his father south. Now he's the senior vice president. "I'm still the president, and I look over his shoulder a little bit, but Leo, Jr. pretty well runs things now. I'm very proud of him. He's

done well at everything."

Apparently, that runs in the family. Over the years, Leo Vecellio's accomplishments have been recognized by numerous organizations, which have presented him with degrees, certificates, and other awards.

But three honors in particular seem to sum up his career. In 1978, he was selected "West Virginia University Coal Man of The Year." In 1982, he was named "West Virginia Italian-American of the Year" In 1988, alma mater Virginia Tech recognized him as "Distinguished Alumnus of the Year."

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*Island Creek won for its surface operation in Nicholas County.*

## Island Creek Wins National Award



*Island Creek Coal Co. accepts the 1st Annual "Kenes C. Bowling Award." From left are Mark Scott of WV-DoE, Island Creek's Steve Keen, Jim Bloom, and Jerry Lombardo, and Greg Conrad, who stepped in as IMCC director when Kenes retired.*

Island Creek Coal Co. is the winner of the 1st Annual "Kenes C. Bowling Reclamation Award."

Both Island Creek and Mr. Bowling were honored last month at the Annual Meeting of the Interstate Mining Compact Commission in Gulf Shores, AL.

Kenes Bowling retired earlier this year after 17 years as Executive Director of IMCC. His dedicated service to the organization and numerous achievements on behalf of the coal industry were duly noted, and he was witness

to the presentation of the first national mine reclamation award, which was made in his name.

Island Creek was named the winner for its outstanding accomplishments on its 870 acre Summersville Surface Mine in Nicholas County. The award cited the company's "innovative and economical reclamation techniques," including overburden placement, elimination of abandoned mines on the site, water quality management, rock fills and revegetation.

Island Creek Chairman S. O. "Bud" Ogden pointed to the combination of tried and true reclamation techniques as the secret to the success of the Summersville mine.

"This technology has all been used elsewhere, but our mine was unusual because it employs so many innovative techniques on one site. We proved that we could have high standards of environmental protection and restoration, and at the same time, save money."

The mine has also become a haven for wildlife, with ample cover and food vegetation that has attracted doves, deer, foxes, wild turkeys, and many other species.

Island Creek's nomination was submitted by the West Virginia Department of Energy.

Despite repeated accusations regarding West Virginia's reclamation and regulatory programs, Mountain State mines continue to come up winners whenever national awards are handed out.



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Patrick C. Graney, III at work in Beckley

## --- and Pat Graney is Still in Charge

Patrick C. Graney, III is in the family business. But he didn't come to that position in the usual way.

Petroleum Products, Inc., of Beckley and Logan, is celebrating its 50th anniversary this year. Actually, it's Petroleum Products of Beckley that's been around for half a century. The Logan operation comes a little later in the story.

Back in 1938, Patrick C. Graney, Sr. was in the coal business. He, with some associates, purchased the assets of a small wholesale outlet from Gulf Oil and formed Petroleum Products, Inc. Their purpose was mainly to insure a supply for their own oil needs, though they dealt with other coal operators in Raleigh and Fayette Counties.

Pat Graney spent most of his time with his coal interests, but the oil company moved along smoothly, diversifying in the '40's and 50's to include distribution to retail outlets.

Despite the '60's coal boom and the oil embargo in the early '70's, the retail end of the business continued to

increase till it amounted to 70% of the gross in 1975.

That's when Patrick C. Graney, III first came aboard, armed with a bachelor's degree from the University of Virginia, and a few ideas on the direction of the company.

It would be natural to assume that Pat Graney, III took the reins from Pat Graney, Jr., who would have taken over from Pat Graney, Sr. It would also be incorrect.

Patrick C. Graney, Jr. was an attorney in Fayetteville, and though he did legal work for the company, he was never involved in day-to-day operations.

To further complicate the line of succession, both Mr. Graney Sr. and Jr. passed away within a year, when young Pat was only 14.

"I didn't have that," he says now, in reference to the usual passing of the company torch from grandfather to father to son. "But I had some good advice from my grandmother, my mother, and other family members, and from friends who encouraged me

to get involved with the company."

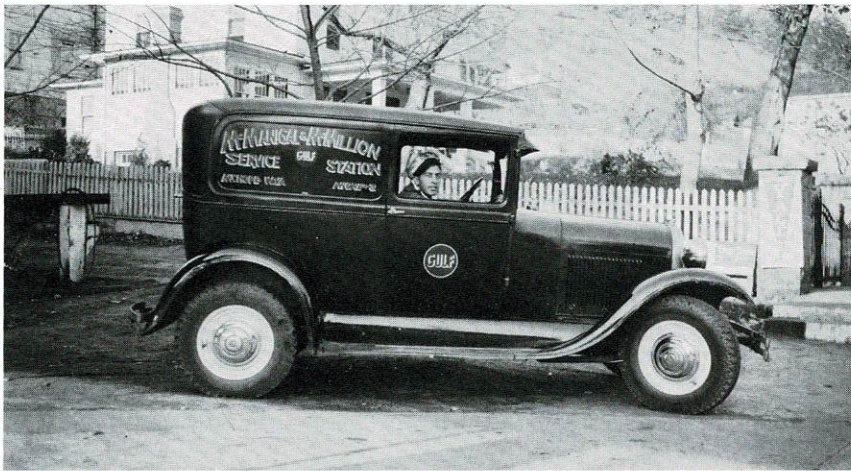
But he did have a stable business which had been in the same location for 37 years. It still is. Virtually everything else is different.

The new president's first move was to consolidate his position. This he did by buying out some of the other major stockholders. Then he proceeded to move the company in a bold new direction.

"I felt strongly that our immediate potential for growth was primarily in the industrial supply market, with the booming coal market at that time. I still do, though the retail business is very important to us as well." To implement that strategy, he bolstered the product line and put two salesmen on the road full time.

Part of the plan was an expansion of his own capabilities. Taking leave from the business, he returned to UVA to earn his master's degree in 1981. Most people get an advanced degree to earn a raise, or bolster their resume. Why would a company owner make the sacrifice?





*The delivery of oil products has changed drastically from the days of Patrick Graney, Sr. to Patrick Graney, III.*



"I did it to become a better businessman," he says frankly, "and it was one of the best decisions he ever made." Once back in Beckley, Pat Graney felt ready to embark on the planned expansion of facilities.

In 1981, he purchased a distributing company and acquired the services of Tom Taylor, now the sales manager of Petroleum Products.

In 1982, he bought a plant in the town of Logan which brought the company new business in Boone, Logan and Mingo Counties.

Also in 1982, the company entered the convenience store market,

selling gas and groceries under the name One Stop Shoppes, an enterprise that has spread extensively through Raleigh and Fayette Counties.

In 1984, he acquired another plant in Logan, and with it John Ford, now the Logan general manager.

Two years ago Bob Maynard, with a long background in the business, came aboard and has since become general manager of the Beckley facility.

The acquisition of personnel, along with facilities and markets is not incidental to the company's suc-

cess. "We're not a one man show, by any means," says the president. "We have what I term 'management depth,' with experienced, capable managers at all of our facilities. We have quality people right down the line, and I am proud of the work they do. We have built our reputation on performance, along with quality oil products."

In 1988, the distribution of Petroleum Products' business is about 50-50 between retail and industrial, with a heavy emphasis on growth on the industrial side. Employment has grown from 11 in 1978 to more than 80 at present. The market area has expanded to 15 counties in southern West Virginia, as well as border areas of eastern Kentucky and southwest Virginia.

Bulk plant terminals are located in Beckley and Logan, both with spacious warehouse facilities. The Beckley plant has a custom capability, allowing the company to package bulk oils in a variety of container sizes.

Petroleum Products is now a major distributor in the Mid-Atlantic Division of Chevron Oil Products, and handles a full line of Shell Oil lubricants as well.

The company now does as much business in a month as it did in the year of 1975, when Graney took over. That's no coincidence.

"The business was just not expanding in 1975," he says now. "In this business, we determined it's either grow or die. We just did what we had to do."

"And that's still true today. In my time here, there has been a tremendous increase in costs, from insurance, to equipment, to construction — just everything. We're always looking for expansion opportunities. That's our basic strategy. That and service."

Service comes up a lot in a conversation with Graney. "People

have a perception that oil is oil. How we take care of our customers has a lot to do with our success. When our customers need a product on the site, it's our job to deliver— no excuses. That's our philosophy.

"We don't just sell the product. We have field people trained to offer technical assistance in product use and equipment maintenance. Our location and custom delivery service enables customers to reduce on-site inventories. Our diverse supply system minimizes the chances of an interruption of product supply. And our market position keeps our prices competitive."

With the kind of expansion that Petroleum Products has undergone, Pat Graney has enjoyed the '80's. But he has no intention of letting his company rest on its laurels. "We are fully committed to longevity and viability. That means we are always on the lookout for further expansion opportunities."

"We're also committed to a 'state-of-the-art' position with regard to equipment, safety, products and service. And the 'state-of-the-art' is constantly changing. So we'll keep on changing to meet the needs of our customers."

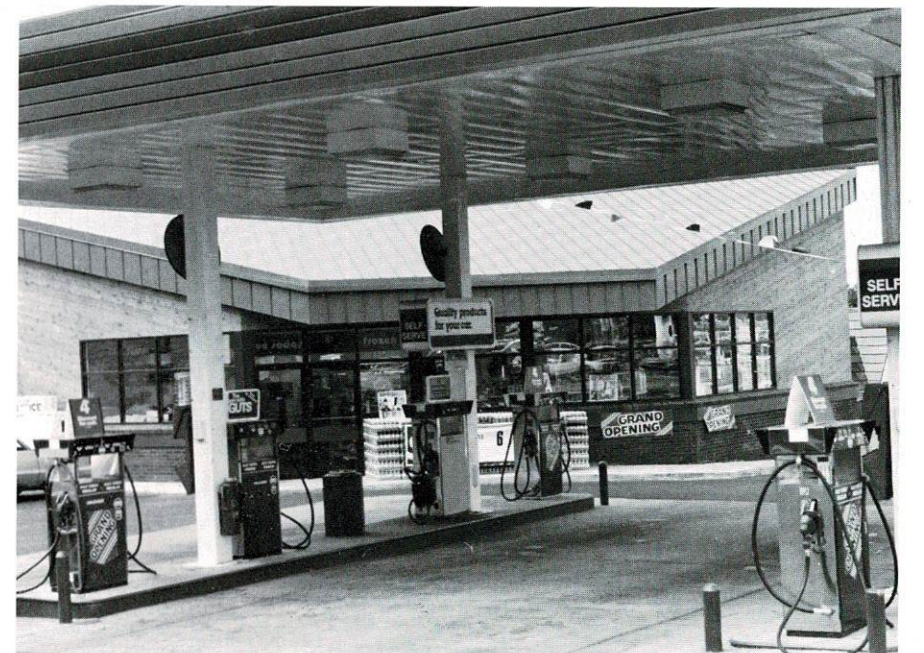


*Chevron recognized the company's 50 years in the oil distribution business with a special ceremony in Charleston last summer. Here Larry Walker of Chevron makes the presentation to Pat Graney.*

## 'Oil is our Product, Service is our Business'



*Service stations, too, have changed quite a bit in Petroleum Products' 50 years of business. The company now operates the One Stop Shoppe (shown below) chain of gas station/grocery outlets in Fayette and Raleigh Counties.*





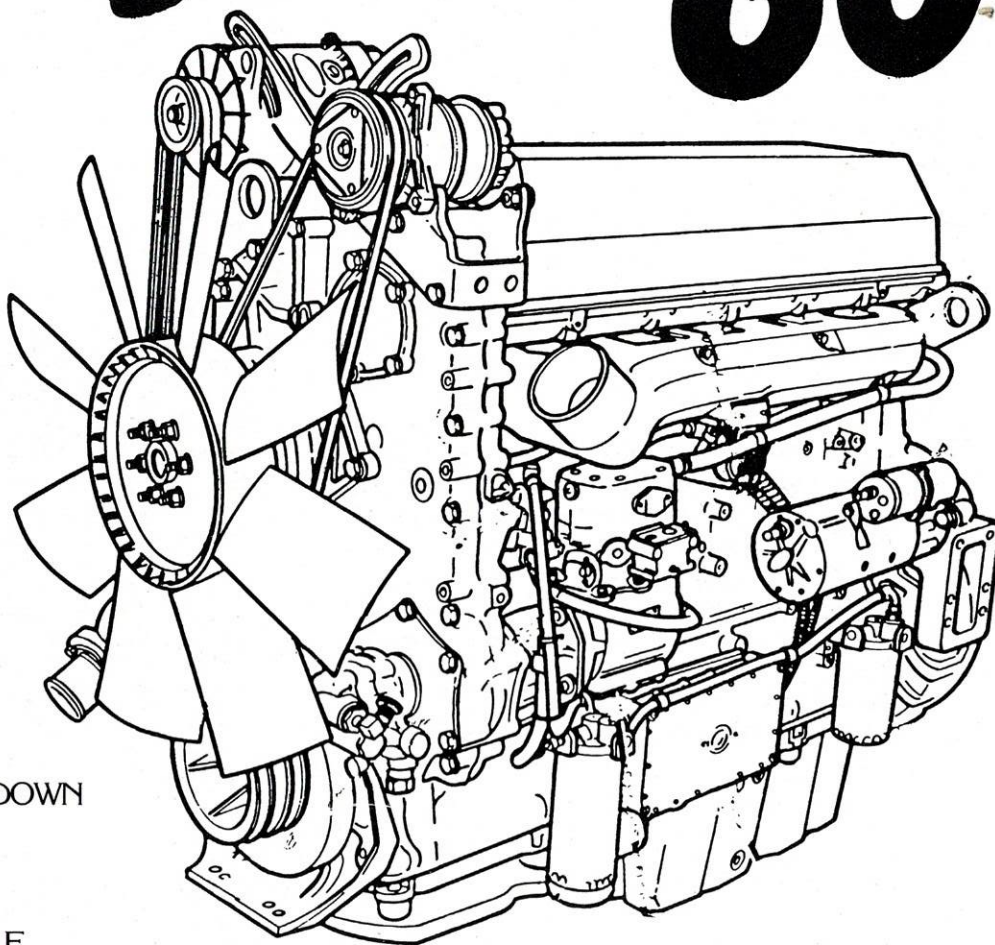


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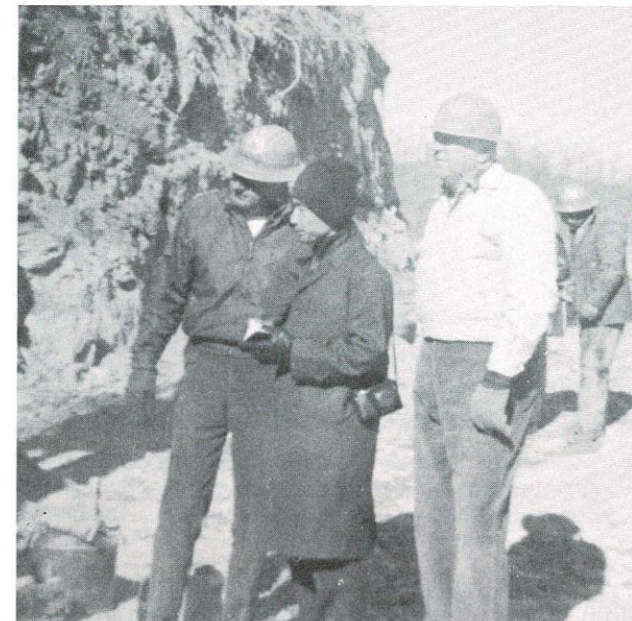
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## Anderson & Anderson & Princeton, West Virginia



Bill and Jack Anderson share their expertise with a visitor from Japan some 20 years ago.



Bill and Jack at last summer's dedication of the completed interstate highway system.

Bill Anderson's desk is in a "semi-private" office, despite the fact that he is the co-founder and sole owner of Anderson & Anderson Contractors, Inc., which celebrates its 40th anniversary in Princeton this year.

For years Bill shared office space with his brother Jack, with whom he founded the company in 1948. "It doesn't matter," he says. "I've never spent that much time in here anyhow."

Jack retired in 1976, and Bill bought him out. But Jack's desk remains in place. As a matter of fact, there's an old hard hat bearing the name "Jack Anderson" still sits on the desk, as if it had been used yesterday.

"My boy Jim uses that desk when he's here, but he's not here much either. I think he likes the farm better."

"The farm" is the 125 acre spread in Monroe County where the Anderson boys were raised. The three brothers Jack, Ed, and Bill, came to Princeton from the farm in 1936, just after Bill finished high school.

They all lived with an uncle and found work in the area. Ed did contracting work, and Jack worked for Appalachian Power. Bill got on with the railroad and later joined his brother at Appalachian.

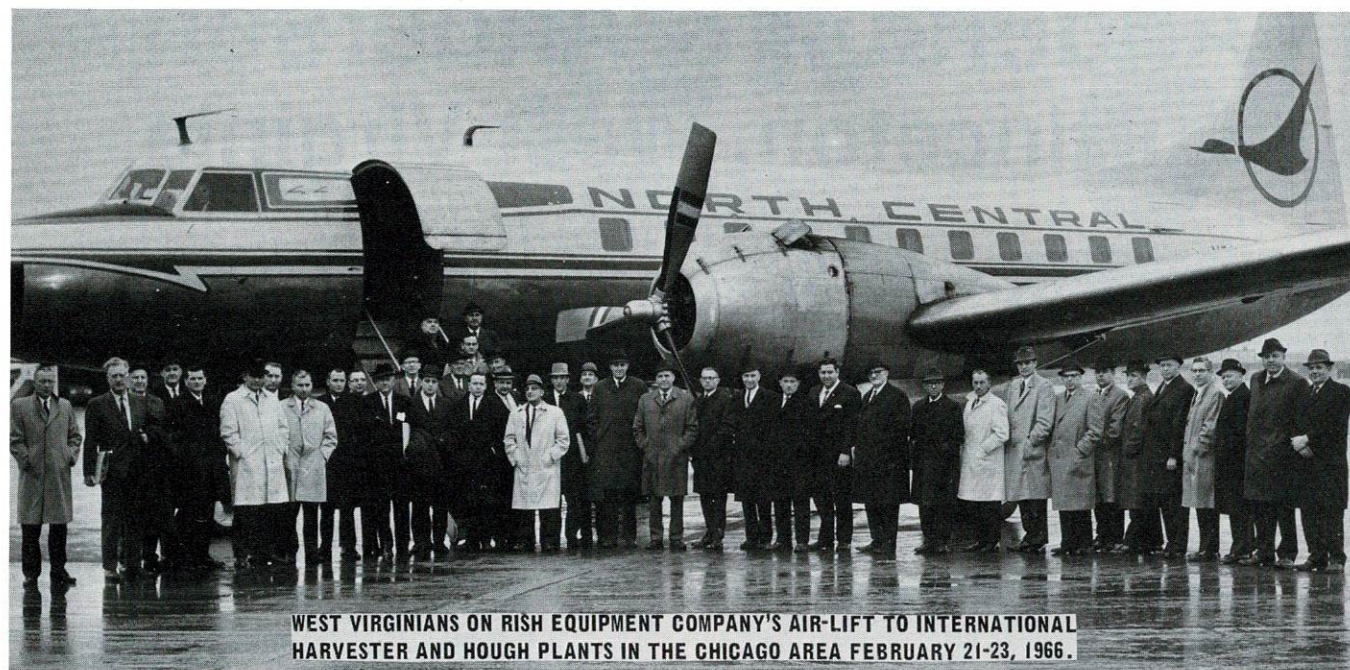
He had just about finished his commercial pilot's license when World War II broke out. "I was the first licensed glider pilot in the Army

Air Corps," he recalls. "That's because I was in the first class, and alphabetically, I was first in the class. When I found out what they did with those things in the combat zone though, I wasn't too anxious to be the first to fly one."

Coming out of the service, the Anderson brothers went into business for themselves. Ed and Bill got things started and soon after, Jack left his commercial pilot's job to join them. Ed later moved on to a sales career, and in 1948, Jack and Bill founded Anderson & Anderson.

How do two brothers divide the work in a new company? "Jack was the president, and I ran it," laughs Bill. Actually, titles didn't matter much in those days. They hired two





WEST VIRGINIANS ON RISH EQUIPMENT COMPANY'S AIR-LIFT TO INTERNATIONAL HARVESTER AND HOUGH PLANTS IN THE CHICAGO AREA FEBRUARY 21-23, 1966.

*The Anderson brothers were part of an "airlift" of West Virginia operators to a coal show in Chicago in 1966. That's Jack and Bill on the stairs.*

laborers, but President Jack spent four days a week running a bulldozer.

Bill spent about all his time in the field, not being much of an office man. "The smell of ink has always made me sick," is how he puts it.

They had an office, down on Scott St. across from the courthouse, "just to have some place to go," but it was the 1960's before they felt the need of a secretary.

Work was plentiful in the post-war boom. "The problem we had was machinery. There just wasn't much of it available in those days, and what there was went to the big money boys.

"But we made do and got a lot of jobs. We worked quite a bit for the railroad, built foundations, anything that had to do with earthmoving, anything for a nickel."

Earthmoving naturally put them in the coal business. "We went in with another fella and started AAA

Coal Co., but that didn't last too long. We mined a lot of coal though, under Anderson & Anderson, right through the Korean War. When that war ended, boom! The coal business ended -- for us anyway."

Coal or no coal, Anderson & Anderson never missed a beat. The West Virginia Turnpike was under construction and they got a lot of subcontracting work on that major project. In the late 50's, they were back in the coal business, more or less to stay. The company's men and machines moved all over southern West Virginia, doing contract mining. Employment peaked at more than 120 in the mid-60's.

That's about when the move to abolish surface mining in West Virginia began to gather steam, and coal operators began to think about banding together to protect their industry. Jack and Bill Anderson were at the forefront.

At first there were northern and southern groups. "We used to meet at the Black Knight Country Club," Bill recalls. "It wasn't very formal. Everybody bought their own dinner."

The two groups later merged to form the organization that became WVMRA.

Jack served on the Board of Directors from 1967-1974, and was president (later called chairman) of the organization in 1969-70. Bill is currently on the board, having served seven years in that capacity.

He just completed a term as chairman, which makes the founders of Anderson & Anderson the only brother combination to chair WVMRA.

The company, now 40 years old, has been a cornerstone of southern West Virginia industry for many years, but there is another side to the Anderson brothers that is less well publicized. That would be their involvement in the community.



*Bill and Jack were among the early winners of the Reclamation Awards, founded to promote better reclamation and still going strong today. Pictured in 1968 are (l-r) Jack Baldini, Bill Anderson, Jack Anderson, Paul Gaskill, A. S. Cappellari, WV-DNR Director T. R. Samsell, Leo Vecellio, Bernard Folio, Tracy Hylton, and Fil Nutter.*

Bill Anderson's name doesn't appear on a lot of donor lists. That's the way he wants it. "I've never been a big one for donating to organizations where they spend the money on other things. I'd rather do it like this. If I see somebody that needs my help, I try to help them."

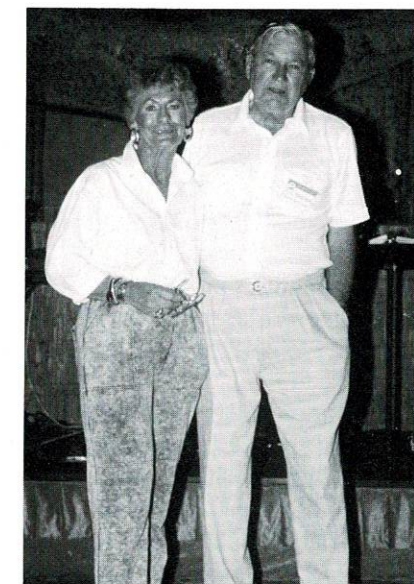
High on that list has been Concord College, in nearby Athens. "That's a good example," Bill allows. "There's a good little school that doesn't have the resources that a lot of big universities have. So we've tried to help them out a little."

Actually, a little is a lot in this case. Brother Jack funds a scholarship to Concord for a student from their native Monroe County. Jack and Bill have both served on the Concord College foundation. Bill was its chairman for two years. Bill built the baseball field there that bears his name.

As it turned out, he built six fields. "We were just getting ready to leave the Concord field, when I got a call from the little league people over there, who wanted to know if we could give them some help with their field. Well, we just moved the equipment in there and built five fields for them. It's quite a complex now, with lights and the whole bit. They tell me that 1900 kids use that place in the summer," he says with satisfaction.

Bill Anderson cuts a dashing figure at official functions and formal affairs. But catch him in an ordinary situation, and you have to listen closely to pick up on his successes. He downplays everything he's done. "I made my money here," he says of Princeton, "and I've put a little back. That's the way it should be."

That's a typical understatement from one of the truly big men of southern West Virginia industry.



*Paul Ena & Bill Anderson at a recent Association meeting.*





*The Anderson family celebrates the conclusion of Bill's successful term as WVMRA Chairman. Left to right are Todd Coppinger, Paul Ena, Bill, Marsha Coppinger, Brad Coppinger, Jim Anderson, and Danny Coppinger.*



*New Chairman Roy G. "Chick" Lockard and Janet Backas.*

## Chick Lockard is new WVMRA Chairman

Roy G. "Chick" Lockard of Clarksburg is the Association's new chairman of the Board of Directors.

Chick, president of Kelley Coal Co. in Clarksburg, was elected chairman in August at the 22nd Annual Meeting at the Greenbrier Hotel in White Sulphur Springs.

The new chairman assumed his post almost ten years to the day after his company joined the Association in 1978.

In the grand tradition of Association chairmen, Chick Lockard has expanded his abilities and resources far beyond the coal industry, involving himself in numerous activities and worthy causes in his native central West Virginia.

He is a vice president of Stonewall Jackson Memorial Hospital in Weston. He is a charter member of the Pricetown Volunteer Fire Department. He is a sponsor of the Special Olympics in Lewis County. He is a "Gold Coat Director" of West

Virginia University.

He established the Roy G. Lockard Scholarship at Lewis County High School, constructed a Little League baseball field in Pricetown, donated a track for the Lewis County Boot & Saddle Club, and provided various equipment for the local 4-H chapter.

As WVMRA chairman, Chick succeeds James W. "Bill" Anderson of Anderson & Anderson Contractors, Inc., Princeton, who served during 1987-88.

Other officers elected at the meeting include:

First Vice-Chairman, Paul F. Hutchins of Freeman Branch Mining, Columbus, OH;

Second Vice-Chairman, Kenneth G. Woodring of Hobet Mining, Inc., Madison;

Secretary, R. Donald Cussins of Buffalo Coal Co., Bayard;

Treasurer, Donald K. Cooper of

Princess Susan Coal Co., Charleston;

Associate Division Chairman, Bernie E. Dearth, Jr. of Bridgeport Trucking Co., Clarksburg.

Nine members of the Board were re-elected to three year terms, including Paul Hutchins; Ken Woodring; Don Cooper; Bernie Dearth; John R. Bryan of Pittston Coal Group, Lebanon, VA; James C. Justice of Bluestone Coal Corp., Beckley; James J. LaRosa of LaRosa Fuel Co., Inc., Clarksburg; Charles T. Jones of Amherst Industries, Inc., Charleston; and John C. Williamson of Cecil I. Walker Machinery Co., Charleston.

John E. Hull of Peabody Coal Co., Charleston, was newly elected to a three year term.

David E. Huffman of Beckwith Machinery Co., Clarksburg, and John C. Hill of Marrowbone Development Co., Naugatuck, were named to fill unexpired vacancies.

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## One last time, Thanks for the prizes

### GOLF TOURNAMENTS

Anderson of WV (Tom Meehan) - \$10,000 Hole In 1 (#18)  
 Beckwith Machinery (Dave Trueman) - \$100.00  
 Crown Hill Equipment (Chris Supcoe) - \$100.00  
 Cummins Cumberland (Ed Surgeon) - \$100.00  
 Explosives, Inc. (Bernard Folio) - \$100.00  
 Lilly Explosives (Bob Gibson) - \$100.00  
 Logan & Kanawha Coal (Bill Swango) - \$50.00  
 Marathon LeTourneau (Joey Berry) - \$100.00  
 McDonough Caperton (Andy Teeter) - \$100.00  
 Mt. State Bit Service (Skeeter Laskody) - Blaster's Lamp  
 Payhaulers Corp. (Wayne Lowrey) - Driver  
 Persingers (Bob Bliss) - \$50.00  
 Piedmont Airlines (Gary Withrow) - 2 Airline Tickets (Hole In 1)  
 Rish Equipment (Jay Mullen) - \$50.00  
 Robbins Manufacturing (Jim McNeil) - \$100.00  
 Rudd Equipment (Roger Fitch) - \$100.00  
 Sii Smith-Gruner (Bill Shropshire) - Coal Trophy & Golf Balls  
 Songer Insurance (Jim Songer) - \$100.00  
 Tamrock Driltech (Jim Chrivia) - \$150.00  
 Union Carbide (John Rader) - Putter, Linde Star & Trophy  
 Walker Machinery (John Williamson) - \$100.00

### TENNIS TOURNAMENTS

Anderson of WV (Tom Meehan) - \$50.00  
 Independent Explosives (Don Adkins) - \$50.00  
 Ingersoll-Rand (Jim Green) - \$50.00 & Trophy  
 McDonough Caperton Insurance (Andy Teeter) - \$50.00  
 Ohio Seed (Kevin Keckley) - \$50.00  
 Penn Line Service (Larry Roberts) - \$100.00  
 Sturm Environmental (John Sturm) - \$25.00

### FISHING TOURNAMENT

WV Explosives (Bruce Wood) - \$300.00 (Tag Fish)

### NAME TAG DRAWING

Dominion Bank (Brian Spencer) - Color TV

### MONTE CARLO NIGHT

Austin Powder (Herman DeProspero) - \$50.00  
 Crown Hill Equipment (Chris Supcoe) - \$50.00  
 Cummins Cumberland (Ed Surgeon) - \$100.00  
 Gould Energy/Warner Laboratories (Jim Ashby) - \$50.00  
 Gould Energy/Weighing & Control (Jim Ashby) - \$50.00  
 Ingersoll-Rand (Jim Green) - Compressor  
 Johnson Railway Service (Hugh Johnson) - Train Set  
 Lilly Explosives (Tim Warden) - Color TV  
 Noone Associates (Robert Kaufman) - \$100.00  
 Republic Industries (George Sotsky) - \$100.00  
 Rish Equipment Co. (Dan Pochick) - WVU Windsock  
 Rudd Equipment (Roger Fitch) - \$50.00  
 VME Americas (Russ Brown) - \$50.00  
 Worldwide Equipment (Terry Dotson) - \$100.00

### TRAP TOURNAMENT

Anderson of WV (John Mullen) - Trophy  
 Coal Field Machinery (Joe Ison) - Vest  
 Land Use (Ed King) - Trophy  
 Lilly Explosives (Tim Warden) - Jacket & Hat  
 Nell Jean Enterprises (Warren Hylton) - Vest  
 Robinson & McElwee (Joe Price) - Trophy  
 Superior Corp./Dryden Oil (Dave Lang) - Shotgun

### BOWLING TOURNAMENT

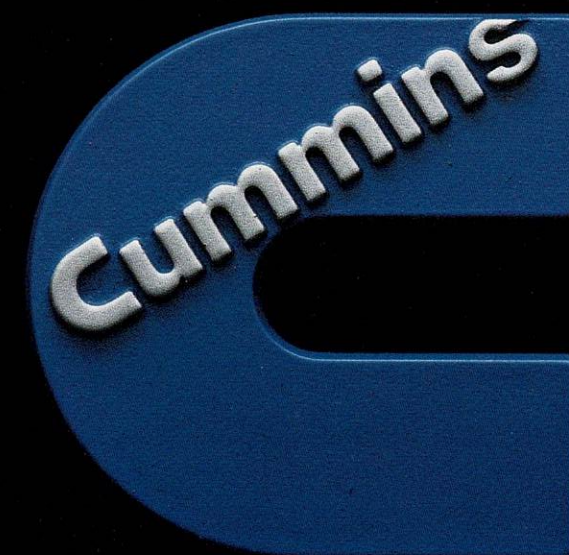
Dominion Bank (Brian Spencer) - \$50.00  
 Lilly Explosives (Tim Warden) - Pocket Knife  
 Logan & Kanawha Coal (Bill Swango) - \$100.00

### FUN RUN

Dominion Bank (Brian Spencer) - \$50.00  
 Sturm Environmental (John Sturm) - \$50.00

### NEW CHAIRMAN'S BREAKFAST

Superior Corp./Dryden Oil (Dave Lang) - Color TV  
 VME Americas (Russ Brown) - \$100.00



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The last few minutes of Bill Anderson's term as chairman of WVMRA were devoted to expressions of affection for him.



Nobody said it better than his wife Paul Ena, who, with a little help from Bunny Fitch, shared a good story with the banquet audience.

## Chairman Bill Bows Out



The tale was one of a meticulous dresser and his battle with tuxedo accessories on his first night as chairman.



Paul Ena authored the story, and Bunny passed it on to the audience as only she can do, but Bill was unequivocally the star..



As the photos show, the outgoing chairman was a little skeptical when Bunny took the microphone, but he soon got into the spirit of things as the tale of the tuxedo unfolded.



In the end, Chairman Bill apparently appreciated the affection which went into the writing, and the telling. And he doesn't deny a thing!

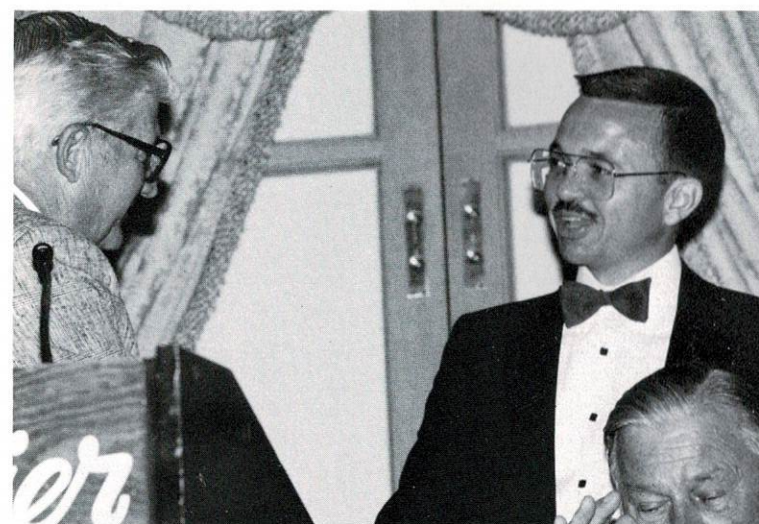


Former Director C.E. "Jim" Compton (l) of Grafton Coal, with President Ben Greene.



Association Secretary Don Cussins of Buffalo Coal Co., and wife Barbara.

## Annual Meeting August 11-14 at *The Greenbrier*



New Chairman Chick Lockard presents Vice-President Bill Raney with a watch in commemoration of ten years of dedicated service to WVMRA.

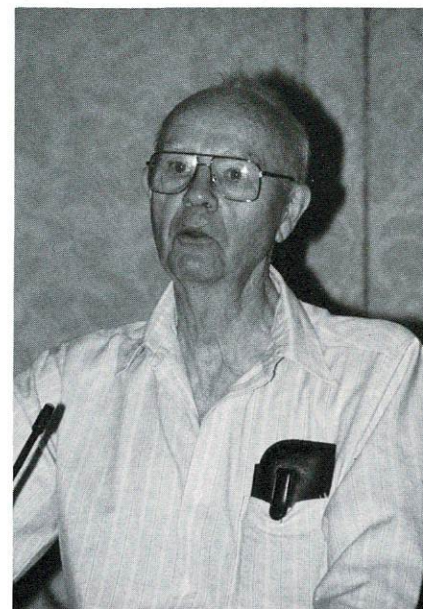


Former chairman Jim Justice of Bluestone Coal with Geoffrey Wilcher of Coal Power Corp.





*In the midst of the Annual Meeting, Patty Bruce, and Bob & Mary Ann Steele appear to be ready for the Semi-Annual Meeting, set for January 17-24 in Maui, HA.*



*Jim Comstock, venerable editor of the West Virginia Hillbilly.*



*Associate Division Chairman Bernie Dearth of Bridgeport Trucking, and John Williamson of Cecil I. Walker Machinery, ponder the odds at the crap table during "Monte Carlo Night."*



*New Chairman Chick Lockard and outgoing chief Bill Anderson.*



*Virginia Congressman Rick Boucher.*



*Tom Meehan of Anderson of West Virginia had no particular plans to celebrate his birthday at the Annual Meeting, but his wife Kathy took care of all the arrangements. Tom didn't mention which birthday is worthy of black balloons but a close look reveals a 4 and an 0.*



*Pam Raney (c) with Mary and John Bryan of The Pittston Coal Group.*





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**Penn Line Service** - Pat Carder, Jenny & Larry Roberts, Rex Carder.



**Trojan Corporation** Jim & Patti Bertiaux, Tom Clark, John Kelly

# Company Pride



Joan & Don Donell, **Starvaggi Industries.**

As always, the competition in the "Company Pride" contest was spirited and colorful.

The pride of employment was energetically reflected by the apparel of a good number of attendees at the Coal Miners' party on Kate's Mountain.

Congratulations to all those who participated.



**Petroleum Products** - Pat & Tom Taylor, Jessica & Pat Graney, John & Carol Ford.



**Cummins Cumberland** Dave & Jan Hibbs, Arlou and Ed Surgeon.



**Cecil I. Walker Machinery** - I-r John & Rachel Williamson, Ellen & Bob Fredrickson.



**Rish Equipment Co.** -- I-r Jay Mullen, Fred Balthis, Pandora Mullen, Dan & Nancye Pochick, Bruce Meeker



Myrleen & Jack Fairchild, **Fairchild International.**

## Lilly Explosives - Associate Division Winner - Company Pride 1988



It takes big numbers to win the "Company Pride Award," a lot of people and a lot of apparel. The contest has proved so popular, and the judging so difficult, that the competition has been divided into Associate and General Divisions.

This year's winner in the Associate Division is Lilly Explosives. In the General Division, Ford Coal defended its title from 1987.



## Ford Coal - General Division Winner - Company Pride 1988



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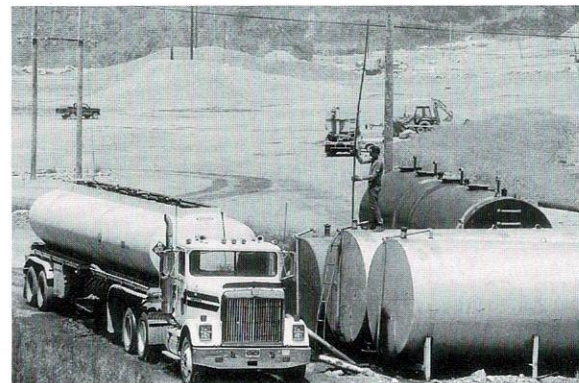
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# Chemicals for Treating Acid Mine Drainage

## Prevention of Acid Mine Drainage

Since 1978, the West Virginia Mining and Reclamation Association, through the West Virginia Surface Mine Drainage Task Force, and in conjunction with state and federal regulatory agencies, has advocated mining and reclamation techniques to prevent acid from being formed during surface coal mining operations.

The Acid-Base Account and other overburden analytical methods are used to identify layers which are acid toxic, potentially acid-producing, neutral, or alkaline-producing. Once the separate overburden layers have been analyzed and evaluated for chemical production potential upon weathering, overburden handling and placement plans may be developed. It is critical for each operator to carefully develop the overburden handling and placement plan based on the specific site's overburden characteristics.

A 1987 bulletin entitled "A Review of Procedures for Surface Mining and Reclamation in Areas with Acid-Producing Materials" discusses overburden analytical techniques for prediction of acid mine drainage (AMD) and new developments in acid prevention.

Please contact the WVU Energy and Water Research Center (258 Stewart St., Morgantown, WV 26506, (304) 293-2867, for copies of Bulletin 871.

by Jeff Skousen  
Division of Plant and Soil Sciences  
West Virginia University

## Treatment of Acid Mine Drainage

In the last issue of *Green Lands*, treatment of AMD by Wetlands and IMPPS was discussed. In this paper, the chemicals which are used to treat AMD, and water quality parameters which are involved to select the proper chemical for a particular AMD problem, are presented.

### Water Quality Parameters

NPDES permits on surface mines usually require monitoring of pH, alkalinity, acidity, total suspended solids (TSS), and iron and manganese concentrations. Other parameters may be requested by the regulatory authority in a particular mining situation. However, in order for an operator to make a selection of an AMD treatment system, he must determine (in addition to the above parameters) the flow rate, the sulfate concentration, and the ferrous iron concentration (sometimes dissolved iron) in the AMD. After evaluating these variables over a period of time, the operator can consider the economics of different chemicals and alternative AMD treatment systems.

### Chemicals

Four chemicals are typically used in treating AMD: calcium carbonate (limestone) calcium hydroxide (hydrated lime), sodium carbonate (soda ash or briquettes), and sodium hydroxide (caustic soda). These compounds can be divided and examined in terms of their properties based on calcium vs. sodium and carbonate vs. hydroxide (Table 1.) Ammonia is being used in some cases and will also be discussed.

**Table 1.** Factors that may influence the selection of a calcium or sodium compound for an AMD treatment system.

Factor	Calcium	Sodium
Solubility	slow	fast
Application	requires mixing	diffuses well
Hardness	high	low
Gypsum formation	yes	no
High TSS or clay particles	helps settle clay	disperses clay particles, & keeps clay in suspension.
chemical cost	lower	higher
Installation & maintenance costs	high	low

### Calcium vs. Sodium

The calcium compounds are less expensive than sodium compounds, but they have low solubility in water (reaction rate is slow). So, calcium compounds are generally used in large treatment systems where electricity is available to improve the reactivity of the calcium material (e.g. where aeration units are operated). If sulfate concentrations in the AMD are above 2000 mg/L, then the calcium products will react with the sulfate to form anhydrite or insoluble gypsum. This calcium sulfate precipitate may clog pipes or other structures used to convey the water to the receiving stream after treatment and discharge. The high calcium concentration in the treated water also creates greater hardness than sodium compounds.

### Carbonate vs. Hydroxide

The pH of the water during treatment affects the types and amounts of metals that can be removed or precipitated from the water. Carbonate compounds do not raise pH of the water above 8.5, while hydroxide compounds can raise pH above 10.0. Ferric iron ( $Fe^{+3}$ ) converts to the solid yellowish-orange precipitate, ferric hydroxide or yellow boy, at a pH of 5.5 or greater. Ferrous iron ( $Fe^{+2}$ ) converts to the solid bluish-green ferrous hydroxide at a pH of 9.0 or greater. Soluble manganese changes to insoluble manganese hydroxide at a pH of 10.0. Therefore, the various metal concentrations in the AMD dictate the appropriate chemical reagent to be used to achieve sufficiently high pH levels. If ferric iron is the major problem, it is possible to remove it with a sodium carbonate material, while manganese generally requires the elevated pH attained by adding a hydroxide material. If ferrous iron is present, a sodium hydroxide material may be used, but it may be cost effective to use hydrated lime in conjunction with an aerator to oxidize the ferrous to ferric iron for precipitation at a lower pH.

### Ammonia

Anhydrous ammonia ( $NH_3$ ) is being used in some areas to neutralize acidity in AMD. Ammonia is a stable, very pungent, colorless gas at atmospheric pressure, but when pressurized in a tank, it becomes a clear liquid. It is usually injected into sediment ponds as a vapor or a liquid, and due to its high solubility, reacts rapidly and raises the water pH to 10.5 or 11.0. Ammonia consumes acid ( $H^+$ ) and also generates hydroxyl ions ( $OH^-$ ) which can then react with heavy metals for precipitation. The cost of neutralizing AMD with ammonia is competitive with other neutralizing agents: it is about the same as hydrated lime, but less expensive than caustic soda or soda ash. In situations where the pH must be raised to 9 or 10 to treat AMD (e.g. when caustic soda is required), the substitution of ammonia for caustic reduces the cost of AMD treatment dramatically.

Although ammonia is very effective in controlling acidity and raising pH, there are some possible chemical and biological reactions which may pose hazards downstream after discharge. First, un-ionized ammonia can persist in water at a neutral pH and, in this condition, is toxic to fish and other aquatic life. Second, nitrification (the biological conversion of ammonium to nitrate by specialized bacteria can theoretically increase nitrate concentrations and acidity downstream.

Ammonia neutralization of AMD offers several advantages over other chemicals, but some environmental hazards may exist. The sediment pond and downstream water should be monitored continuously if ammonia is used as a chemical for AMD treatment. Several ammo-



**Figure 1.**  
Soda ash briquettes are used in this treatment system. The AMD flows through the box where it contacts and dissolves the briquettes slowly. As the soda ash dissolves, new briquettes are fed into the box to supply continuous neutralizing material. a turbulent out-fall from the system provides aeration and helps oxidize ferrous to ferric iron and liberate carbon dioxide.



nia systems for treating AMD are being used with no apparent downstream problems and are reducing the operator's chemical treatment cost considerably.

### Practical Considerations

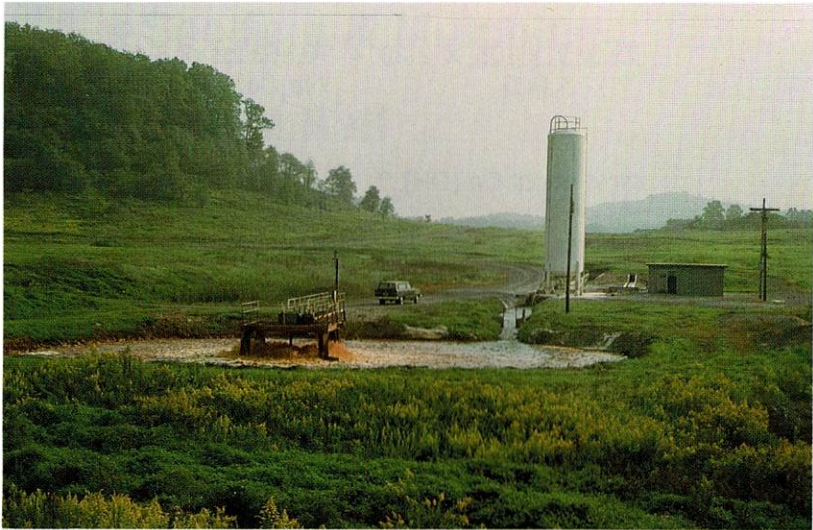
The selection of a dispensing system should be based on the amount of water that needs treatment, the type and amount of neutralizing material necessary for metal precipitation, the residence time available in the sedimentation pond for metal precipitation, and the availability of electricity. If electricity is not available, the use of hydrated lime is generally not feasible (unless hydrated lime is used for a one-time surface application only). For short-term application where electricity is unavailable, the sodium compounds (and ammonia in some cases) with high solubility are generally desired. Soda ash (briquettes), sodium hydroxide, and ammonia are soluble and can be applied at the water surface without mixing the water with the chemical. Mixing, however, does improve the efficiency of the sodium compounds. If a high pH is needed (e.g. a pH around 10.0 for manganese precipitation), then a gravity-fed sodium hydroxide or a pressurized ammonia system may be used. During winter months, the sodium hydroxide solution (usually 20% or 50% pure NaOH) can freeze, so a small amount of antifreeze is added to the solution. If manganese is not a problem, it may be easier and cheaper to use a water-flow-through system using sodium briquettes with natu-

ral aeration (Figure 1). An alternative to briquettes is the use of solid caustic soda which comes in a 50 pound drum.

When neutralizing large amounts of AMD with high levels of acidity for a long time period (greater than 3 years), the more capital intensive but cheaper hydrated lime is generally used (Figure 2). The hydrated lime treatment systems require electricity (or gasoline operated engines) and have pH sensing metering devices to automatically run the pumps and aerator. Ammonia systems have also been used in these situations.

Limestone treatment of AMD is highly limited by iron coating of the limestone particles which renders the particles unreactive. However, if only small concentrations of iron, manganese, and aluminum are found in the water, limestone will precipitate these ions and will raise pH of the water to 7.0

A very important aspect of the AMD treatment system is the size of the settling basin or pond. The residence time of the water is important in order to allow the metal sludge to precipitate in the pond. In general, as pH of the water after treatment and its degree of aeration are increased, the residence time in the pond for metal removal is shortened. Cleaning of the pond will be necessary periodically to maintain the efficiency of the settling process if large amounts of sludge are generated and deposited.



**Figure 2.**  
Hydrated lime with a large aeration/mixing unit is often the most economical chemical for neutralizing large amounts of AMD with high metal concentrations.

### Calculating Neutralization of Acid Mine Drainage

In Order to neutralize acid mine drainage, the total amount of acidity must be calculated based on the total acidity in the water (through laboratory analysis) and the volume of water.

$$\frac{\text{Acidity} \times \text{Volume}}{100,000} = \# \text{ of moles of } \text{CaCO}_3 \text{ equivalent acidity} = \text{MACID}$$

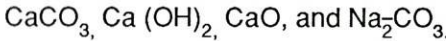
Volume in this equation must be in liters.

Conversions: cubic feet x 28.31685 = liters  
gallons x 3.785306 = liters

The amount of base required to neutralize the acidity depends on the neutralizing agent and its molecular weight.

Neutralizing Compound	Molecular Weight	Common Name
CaCO <sub>3</sub>	100	limestone
Ca (OH) <sub>2</sub>	74	hydrated lime
CaO	56	quick lime
NaOH	40	caustic soda
Na <sub>2</sub> CO <sub>3</sub>	106	soda ash, briquettes
NH <sub>3</sub>	17	ammonia

Determination of the kilogram or pounds of base needed to neutralize the MACID is calculated as follows for these neutralizing compounds:



$$\frac{\text{MACID} \times \text{molecular weight}}{1000} = \text{kg of material} \times 2.20 = \text{lbs of material}$$

NaOH and NH<sub>3</sub> are calculated as follows:

$$\frac{\text{MACID} \times \text{molecular weight} \times 2}{1000} = \text{kg of material} \times 2.20 = \text{lbs of material}$$

NaOH can be purchased as a liquid in either 20% or 50% concentrations. In these cases, an additional calculation must be made to convert pounds to gallons:

$$\begin{aligned} \text{lbs of pure NaOH} \times .49 &= \text{gallons of 20\% NaOH} \\ \text{lbs of pure NaOH} \times .16 &= \text{gallons of 50\% NaOH} \end{aligned}$$



#### Example

A pond has 160,000 cubic feet of water with the following characteristics:

pH	3.1	
total acidity	1596	mg/L
total Fe	564	mg/L
total Mn	31	mg/L
suspended solids	22	mg/L
SO4	2790	mg/L

How many gallons of 20% NaOH will be required to neutralize the acidity in the pond?

$$\frac{160,000 \text{ cubic feet} \times 28.31685 \times 1596}{100,000} = 72,310 \text{ moles of acidity}$$

$$\frac{72,310 \times 40 \times 2}{1,000} \times 2.20 \times .49 = 6236 \text{ gallons of 20\% NaOH}$$

How about  $\text{Na}_2\text{CO}_3$ ?

$$\frac{72,310 \times 106}{1,000} \times 2.20 = 16,863 \text{ lbs or 8.43 tons of } \text{Na}_2\text{CO}_3$$

How about  $\text{Ca}(\text{OH})_2$ ?

$$\frac{72,310 \times 74}{1,000} \times 2.20 = 11,771 \text{ lbs or 5.89 tons of } \text{Ca}(\text{OH})_2$$

How about  $\text{NH}_3$ ?

$$\frac{72,310 \times 17 \times 2}{1,000} \times 2.2 = 5409 \text{ lbs of } \text{NH}_3$$

In September 1988, prices for these chemicals (bulk) were: 20% NaOH = 55¢/gal; 50% NaOH = \$1.12/gal;  $\text{Na}_2\text{CO}_3$  = \$160/ton;  $\text{Ca}(\text{OH})_2$  = \$150/ton;  $\text{NH}_3$  = 15¢/lb. With this information, the cost of treating this particular amount and type of water can be calculated. However, remember that differences exist between these chemicals in treatment efficiency and in capital expenditures to install and maintain the system.

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# Association Notebook



Justin Woodward and "Masher."



Cricket poses with "Sidewinder."

## Here's the Beef

Don Woodward of Mt. State Bit Service was a proud papa at this summer's West Virginia State Fair.

His children, Justin, 14, and Cricket, 10, brought their home grown steers to the Fair and took home a couple of prize ribbons and some cash to boot.

Justin and Cricket, members of the Braxton County 4-H Club, raised their steers on the family farm. Justin purchased his 385 pound calf last September, named him "Masher," fattened it up to 1084 pounds. Justin and Masher won 3rd Place honors in the overall competition at the Fair.

Cricket selected her calf from the homeplace herd. She must have put out a little extra feed because her

"Sidewinder" tipped in at 1200 pounds. "Actually," says papa Don, "we had to put the thing on a diet last spring so it could make the weight limit." Sidewinder captured 5th place honors in his class.

Following the show competition at the Fair, the entrants went on the auction block. Cricket's Sidewinder brought home \$1200, and Justin's Masher went for more than \$2400.

"The auction is an important part of the whole process," says Don. "Many of the steers are purchased by companies, and the kids keep the money, as a return on the investment of feed, and for their hard work through the year, feeding, grooming, and caring for the animal."

"I personally would like to thank

Tom Clark of Trojan Explosives Corp. and Paul Laskody of Mt. State Bit Service for purchasing Sidewinder and Masher."

Incidentally, Tom Clark lives out-of-state and, after purchasing Sidewinder, donated him back to the Braxton County 4-H. The Club will re-auction the steer and use the proceeds to send local members to the State 4-H Camp at Jackson's Mill next summer.

As for Justin and Cricket, it's into the college fund with their earnings, and back to the feed pen in preparation for next year's Fair. Justin will soon select his next calf, while Cricket, staying with the homegrown strategy, is already "beefing up" her 1989 entrant.

## Profiles of new members

*Following are capsule introductions to some of the newest members of the West Virginia Mining & Reclamation Association. The company name is followed by the location, the company representative, and a brief description of what products or services the company offers, and the general area of operation.*

**Amerikohl Mining, Inc.** - Westover - W. David Maxwell, representative - Surface mining, leasing, and brokering throughout northern West Virginia.

**Appalachian Mining Co., Inc.** - Ashland, KY - Marc Merritt, representative - Surface mining in Kanawha County.

**Charleston Cash Register Co.** - Charleston - Phil Bott, representative - Sales and service of Sharp copiers, cash registers, and facsimiles, Brother typewriters, Leading Edge personal computers in southern West Virginia.

**Citizens Bank of Pikeville** - Pikeville, KY - Victor Allara, representative - Full range of banking services, including equipment leasing and project financing in eastern Kentucky and southern West Virginia.

**Hampden Coal Co., Inc.** - Gilbert - Sidney R. Young, representative - Underground mining and tipple operation in Mingo County.

**Hotsy Equipment Co.** - Charleston - William Day, representative - Sales, service, parts and supplies for Hotsy high pressure hot water cleaners in West Virginia, eastern Maryland, southwest Virginia, and eastern Kentucky, headquartered in Denver, CO., with branch office in Clarksburg.

**J & L Equipment Co.** - Huntington - Marv Jones, representative - Distributor for Sii-Smith-Gruner bits and Gardner-Denver Co. general blasting machinery in West Virginia, Virginia, eastern Kentucky, and southern Ohio.

**Marathon LeTourneau Co.** - Longview, TX - Joey Berry, representative - Design and manufacture of end dump haul trucks and rubber tired loaders, internationally.

**Pittsburgh National Bank** - Pittsburgh, PA - Robert Heuler, representative - Complete banking services for the mining industry, nationwide, 13th largest bank in the U.S.

**Premium Energy, Inc.** - Clintwood, VA - Don Nicewonder, representative - Surface mining in Mingo County.

**Republic Industries dba Republic Diesel** - Louisville, KY - George Sotsky, representative - Parts, repair, and rebuild for diesel equipment and undercarriage of heavy equipment, including dragline walking mechanisms, nationally.

**Saint Lawrence Steel Corp.** - Twinsburg, OH - Martin H. Beechler, representative - Warehousing for alloy steel, custom fabrication, and manufacture of welded overlap products.

**Ultrasystems Development Corp.** - Fairfax, VA - Robert Zulandi, representative - Planning, engineering, financing, construction, and operation of independent power generating facilities throughout the eastern U.S.



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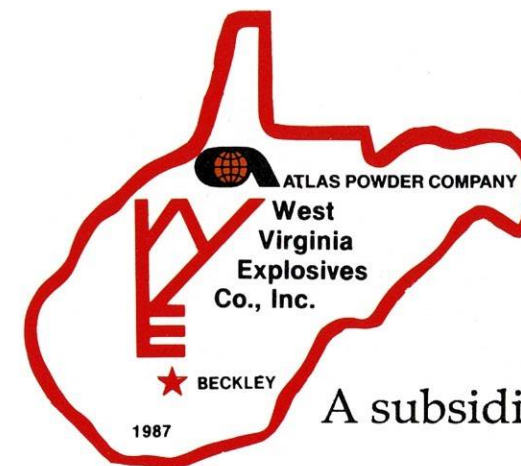
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Wetland construction on an Allegheny Mining site.

## Surface Mine Drainage Task Force Mining and Reclamation Tour

On September 20-21, 1988, the Surface Mine Drainage Task Force conducted a tour of reclamation sites in West Virginia and Maryland. Invited to the tour were representatives from the federal Office of Surface Mining, the West Virginia Department of Energy, West Virginia University, WVMRA, and several coal mining and consulting companies.

Meeting in Morgantown on Tuesday morning, the group drove to the F & M Coal Co. site southwest of Friendsville, MD, where "IMPPS" have been used to treat acid mine drainage. Steve Meador, a representative from Lambda group, Inc., explained the "microbial water purification system" and the members of the tour were able to observe conditions on the site.

From F & M, the next stop was north of McHenry, MD on an Allegheny Mining site, where a wetland had been constructed to treat an acid seep. Danny Junkins of Allegheny met the group and told them about the site and the constructed wetland.

After lunch, the tour continued to Buffalo Coal's wetland reconstruction site outside of Davis, WV.

Don Cussins explained the regulatory problems and permits needed to mine an area classified as wetland. The last stop on Tuesday was the Norton AML site, where PROMAC had been applied to enhance revegetation of the refuse material and



Direct seeding of a refuse pile without topsoil, Island Creek site at Tioga.

improve water quality. Andy Sobek from B. F. Goodrich answered questions concerning the bactericide application.

Leaving Elkins on Wednesday morning, the group drove to Tioga, and looked at Island Creek's successful revegetation of a 100 acre, non-topsoiled, refuse area by direct seeding. Ken Johnson and Steve Keen of Island Creek provided a thorough explanation of the site.

From Island Creek's job, the tour moved to the Juliana Mining site. The company is mining five seams of coal and is disposing of the preparation plant refuse in the backfill during mining. They showed completed areas where disposal had taken place and reported that no water problems have developed. Paul Goad, Ed Roach, and Larry Grogg explained their methods of mining and the equipment they are using.

The tour concluded at the WV-DoE Alton Project, where an automated ammonia system of treating acid mine drainage was observed. Mike Reece led the discussion at Alton.

The Task Force has been a major contributor in keeping the waters of West Virginia of high quality with "state of the art" water quality technology.





# LILLY EXPLOSIVES DELIVERS!!

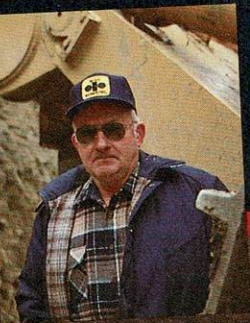


WE ARE COMMITTED TO  
WEST VIRGINIA SURFACE MINING

TIM W. WARDEN  
GENERAL MANAGER

BECKLEY, WV  
(304) 683-4301

**"...good visibility, increased production,"**  
Lawrence Streets, Allegheny Mining Corporation



**"W**e feel good about our Komatsu equipment with Rish standing behind it," said Lawrence Streets, President, Allegheny Mining Co., Mt. Storm, West Virginia. Allegheny Mining operates a surface mining project which provides coal for VEPO's Mt. Storm Power Plant.

A Komatsu D475A-1 Crawler Dozer is used on the project for both the mining and reclamation, according to Streets. "Visibility from the cab is excellent which allows us to see both corners of the blade when pushing a load. . . and to the rear when ripping. Good visibility means increased production," Streets added.

Availability on the dozer has been over 95 percent since it was introduced to the surface mining project. "We have had above average availability on the D475A," Streets said.

"We have purchased a lot of machines from

Rish and feel good about Komatsu with Rish having it. Rish is very attentive to their customers," Streets added. The D475A has a blade capacity of 42 cyd, 740 flywheel hp and weighs approximately 205,000 lbs.

**KOMATSU**

Rish and Komatsu are the choice for a growing number of coal surface mining contractors throughout the area. Join the switch to Komatsu. Contact a Rish sales representative near you for more details.

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