ILLINOIS MINING INSTITUTE



ANNUAL MEETING PROCEEDINGS 2001

Co-Editors: Yoginder P. Chugh, Nancy Cline

PROCEEDINGS OF THE ILLINOIS MINING INSTITUTE

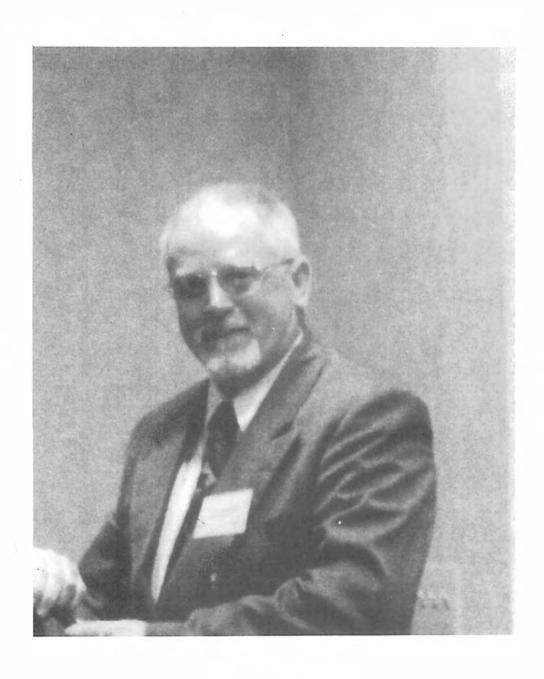
FOUNDED FEBRUARY 1892

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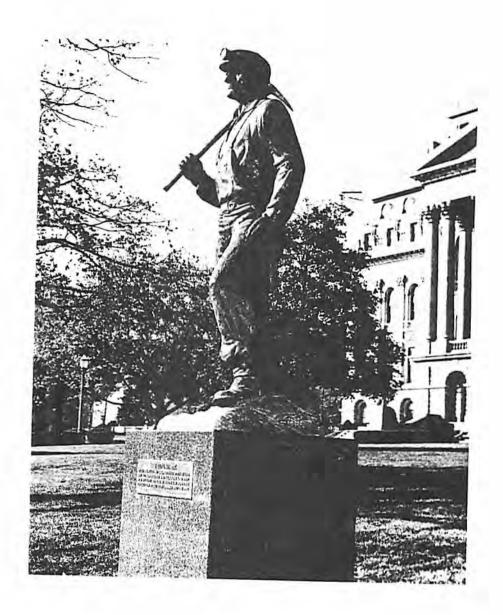
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WILLIAM BORDER President 2000-2001



THE COAL MINER

TRUE—he plays no grandstand role in life But his importance is vital, great and just: For without his toil in earth's caverns deep, Civilization would soon crumble into the dust. AD 1964 From his poem—Vachael Davis

(Dedicated on State Capitol Lawn, Springfield, Illinois, October 16, 1964)

IN MEMORY

OF

ALL DECEASED MEMBERS

OF THE

ILLINOIS MINING INSTITUTE

2001

NONE REPORTED

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ROBERT J. HEPBUR, United Electric Coal Co., Chicago, IL.

1961-62

- 1962-63 JOHN P. WEIR, Paul Weir Co., Chicago, IL.
- 1963-64 E.T. (GENE)MORONI Old Ben Coal Corp., Benton, IL.
- 1964-65 JOHN W. BROADWAY, Bell and Zoller Coal Co., Chicago, IL
- 1965-66 B.R. GEBHART, Freeman Coal Mining Corp., Chicago, IL.
- 1966-67 C.A. BROECKER, Ayrshire Collieries Corp., Indianapolis, IN.
- 1967-68 JOSEPH CARAGGS, Peabody Coal Co., Taylorville, IL.
- 1968-69 CLAYTON SLACK, Sahara Coal Co., Chicago, IL.
- 1969-70 JOSEPH Q. BERTA, Truax-Traer Coal Co., Pinckneyville, IL.
- 1970-71 R.F. DONALDSON, United Electric Coal Co., Chicago, IL.
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- 1972-73 E. MINOR PACE, Inland Steel Coal Co., Sesser, IL.
- 1973-74 ARTHUR L. TOWLES, Zeigler Coal Co., Johnston City, IL.
- 1974-75 DALE E. WALKER, Southwestern IL Coal Corp., Percy, IL.
- 1975-76 M.V.(DOC)HARRELL, Freeman United Coal Mining Co., Chicago, IL.
- 1976-77 JOHN J. SENSE, Tosco Mining Corp., Pittsburg, PA.
- 1977-78 BILL F. EADS, Monterey Coal Co., Collinsville, IL.
- 1978-79 WILLIAM E. WILL, Peabody Coal Co., Evansville, IN.
- 1979-80 CHARLES E. BOND, Consolidation Coal Co., Springfield, IL.
- 1980-81 WALTER S. LUCAS, Sahara Coal Co., Inc., Harrisburg, IL.
- 1981-82 JACK A. SIMON, Illinois State Geological Survey, Urbana, IL.
- 1982-83 H. ELKINS PAYNE, AMAX Coal Co., Indianapolis, IN.
- 1983-84 JAMES D. CHADY, Old Ben Coal Co., Benton, IL.
- 1984-85 ROBERT M. IZARD, Midland Coal Co., Farmington, IL
- 1985-86 DAVID A. BEERBOWER, Freeman United coal Mining Co., Mt. Vernon, IL.
- 1986-87 MACK H. SCUMATE, Zeigler Coal Co., Fairview Heights, IL.
- 1987-88 M. E. HOPKINS, Peabody Development Co., St. Louis, MO.
- 1988-89 GEORGE I. MAY, Monterey Coal Co., Carlinville, IL.
- 1989-90 RICHARD R. SHOCKLEY, Illinois Department of Mines & Minerals, Springfield, IL.
- 1990-91 DAN G. WOOTON, White County Coal Corp., Carmi, IL.
- 1991-92 MICHAEL K. REILLY, Zeigler Coal Co., Fairview Heights IL
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- 1993-94 ROBERT W. SHANKS, Arch of Illinois, Inc., Percy, IL
- 1994-95 DAVID L. WEBB, Freeman United Coal Mining Co., Springfield, IL.
- 1995-96 BERT HALL, Lane Erectors, Harrisburg, IL
- 1996-97 JOHN LANZEROTTE, Monterey Coal Co., Carlinville, IL.
- 1997-98 GREGG BIERREI, Thunder Basin Coal Co., Wright, WY.
- 1998-99 MARK CAVINDER, Old Ben Coal Co., Coulterville, IL.
- 1999-00 PHILLIP OTT, Freeman United Coal Mining Co., Farmersville, IL.
- 2000-01 WILLIAM BORDER, Joy Mining Machinery, Inc., Mt. Vernon, IL.

^{*} Affiliations listed at time of presidency

SECRETARIES AND SECRETARY-TREASURERS

- 1892-96 JOHN S. LORD, Chicago and Kansas City Coal Co.
- 1895-1911 Institute Inactive
- 1911-23? MARTIN BOLT, Illinois Department of Mines & Minerals
- 1923?-29 FRANK R. TIERRE, St. Louis, MO
- 1929-54 B E. SCHONTHAL, B. E. Schonthal & Co.
- 1954-63 GEORGE M. WILSON, Illinois State Geological Survey
- 1963-68 JACK A. SIMON, Illinois State Geological Survey
- 1968-75 M.E. HOPKINS, Illinois State Geological Survey
- 1975-77 HAROLD J. GLUSKOTER, Illinois State Geological Survey
- 1978-98 HEINZ H. DAMBERGER, Illinois Geological Survey
- 1998- Y. PAUL CHUGH, Southern Illinois University

LIST OF HONORARY MEMBERS*

Listed are honorary members from the beginning of the Institute as far as our records reveal. Honorary members were not approved or elected every year. According to the IMI Constitution and Bylaws adopted June 24, 1913, Article II, Section 2: "Any person of distinction in mining may be elected an honorary member of the Institute by two thirds vote...."

In 1983, this section of the Constitution was amended to: "Annually, one or more members recommended by a committee and approved by the Executive Board, who has rendered outstanding service to the Illinois Mining Institute, and thereby to the coal industry of the state may be elected as an Honorary Member with dues being waived."

Hugh Murray, Equality, IL John Rolla, North Breese Coal Mining Co., Breese, IL Frank Tirre, St. Louis, MO 1932 Thomas R. Stockett, Spring Caoyon Coal Co., Spring Conyon, UT John F. Goally, Morris, IL Eugene McAuliffe, Union Pacific Co., Omaha, NB Thomas Mosses, Bunson Coal Co., Danville, IL 1940 F. E. Weissenborn, IL Coal Operations Assoc, St. Louis, MO J. A. Jefferis, II. Terminal Railroad, St. Louis, MO. W. J. Jenkins, Consolidated Coal Co., St. Louis, MO. J. W. Starks, IL Dept. of Mines & Minerals, Springfield, IL L. E. Young, Mining Engineer, Pittsburg, PA John E. Jones, Old Ben Coal Corp., West Frankfort, IL F. S. Pfahler, Superior Coal Co., Chicago, IL B. E. Schonthal, B. E. Schonthal Co., Inc., Chicago, IL D. D. Wilcox, Superior Coal Co., Gillespie, II. George C. McFadden, Carmac Coal Co., Chicago, IL D. W. Buchanan, Jr., Old Ben Coal Corp., Chicago, IL Fred S. Wilkey, IL Coal Operators Assoc. Chicago, IL George M. Wilson, II. State Geological Survey, Urbana, IL George M. Wilson, II. State Geological Survey, Urbana, IL George M. Wilson, II. State Geological Survey, Urbana, IL Jack A. Simon, II. State Geological Survey, Urbana, IL Jack A. Simon, II. State Geological Survey, Urbana, IL Jack A. Simon, II. State Geological Survey, Urbana, IL Jack A. Simon, II. State Geological Survey, Urbana, IL Jack A. Simon, II. State Geological Survey, Urbana, IL Jack A. Simon, II. State Geological Survey, Urbana, IL Jack A. Simon, II. State Geological Survey, Urbana, IL Jack A. Simon, II. State Geological Survey, Urbana, IL Clayton G. Ball, Paul Weir Co., St. Louis, MO Frank Nugent, Freeman United Coal Mining Co., Chicago, IL. Paul Halbersleben, Sahara Coal Co., Inc., Harrisburg, II. Clayton G. Ball, Paul Weir Co., Evanston, IL Clayton G. Ball, Paul Weir Co., Evanston, IL N. E. Hopkins, II. State Geological Survey, Urbana, IL N. E. Hopkins, II. State Geological Survey, Urbana, IL N. E. Hopkins, I. State Geological Survey, Urbana, IL Seery C. Lindsay, Coal Mining & Processing, Chicago, IL Joseph Schonthal, J. Schonthal &	1927	A. J. Moorshead, LaJolla, CA
1928 Frank Tirre, St. Louis, MO 1932 Thomas R. Stockett, Spring Caoyon Coal Co., Spring Conyon, UT 1939 John F. Goally, Morris, IL Eugene McAuliffe, Union Pacific Co., Omaha, NB Thomas Mosses, Bunson Coal Co., Danville, IL 1940 F. E. Weissenborn, IL Coal Operations Assoc, St. Louis, MO 1945 J. A. Jefferis, II. Terminal Railroad, St. Louis, MO. W. J. Jenkins, Consolidated Coal Co., St. Louis, MO. J. W. Starks, IL Dept. of Mines & Minerals, Springfield, IL L. E. Young, Mining Engineer, Pittsburg, PA 1949 John E. Jones, Old Ben Coal Corp., West Frankfort, IL F. S. Pfahler, Superior Coal Co., Chicago, IL B. E. Schonthal, B. E. Schonthal Co., Inc., Chicago, IL D. D. Wilcox, Superior Coal Co., Gillespie, IL George C. McFadden, Carmac Coal Co., Chicago, IL 1955 George C. McFadden, Carmac Coal Co., Chicago, IL 1966 D. W. Buchanan, Jr., Old Ben Coal Corp., Chicago, IL 1967 George M. Wilson, IL State Geological Survey, Urbana, IL 1968 George M. Wilson, IL State Geological Survey, Urbana, IL 1964 M. M. Leighton, IL State Geological Survey, Urbana, IL 1965 John W. Broadway, Bell & Zoller Coal Co., Chicago, IL 1968 John W. Broadway, Bell & Zoller Coal Co., Chicago, IL 1969 John W. Broadway, Bell & Zoller Coal Co., Chicago, IL 1970 J. W. MacDonald, Consultant, Benton, IL 1971 H. C. McCollum, Peabody Coal Co., St. Louis, MO 1972 Frank Nugent, Freeman United Coal Mining Co., Chicago, IL 1973 Paul Halbersleben, Sahara Coal Co., Inc., Harrisburg, IL 1974 Clayton G. Ball, Paul Weir Co., Evanston, IL 1975 C. C. Conway, National Mine Service, Nashville, IL 1976 M. E. Hopkins, IL State Geological Survey, Urbana, IL 1977 Cletus A. Broeker, AMAAX Coal Co., Indianapolis, IN. 1978 Thomas L. Garwood, Freeman United Coal Mining Co., 1979 Benton, IL 1979 George C. Lindsay, Coal Mining & Processing, Chicago, IL 1980 Joseph Schonthal, J. Schonthal & Assoc, Highland Park, IL 1979 J. A. Bottomley, Sahara Coal Co., Taylorville, IL 1981 J. A. Bottomley, Sahara Coal Co., Taylorville, IL 1982 Letty Conerty, Illinois Mining Institute, Urbans, IL		Hugh Murray, Equality, IL
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	1979	George C. Lindsay, Coal Mining & Processing, Chicago, IL
	1980	Joseph Schonthal, J. Schonthal & Assoc, Highland Park, IL
	1981	J. A. Bottomley, Sahara Coal Co., Inc., Harrisburg, IL
	1982	Betty Conerty, Illinois Mining Institute, Urbans, IL
		Joe Craggs, Peabody Coal Co., Taylorville, IL
	1983	E. T. Moroni, Old Ben Coal Co., Herrin, IL
	1984	E. Minor Pace, Inland Steel Coal Co., Mt. Vernon, IL
	1985	Russell T. Dawe, Inland Steel Coal Co., Valier, IL
	1986	E. H. Roberts, Inland Steel Coal Co., Mt. Vernon, IL
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	1988	Lanny Bell, Roberts & Schaefer Co., Chicago, IL
	1989	M. V. (Doc) Harrell, Freeman United Coal Mining Co., Mt. Vernon, IL
	1990	John C. Bennett, Peabody Coal Co., Belleville, IL
	1991	Richard R. Shockley, Center for Research on Sulfur in Coal, Carterville, IL
	1992	Walter E. Brandlein, Roberts & Schaefer Co., Chicago, IL
		Dayton McReaken, Zeigler Coal Co., Fairview Heights, IL
		Thomas Sadler, Old Ben Coal Co., Benton, IL
		Raymond C. Taucher, Consolidation Coal Co., Pinckneyville, IL
	1993	Fred Rice, Peabody Coal Co., Beaver Dam, KY
	1994	Walter S. Lucas, Sahara Coal Co., Harrisburg, IL
	1995	William H. Mullins, Freeman United Coal Mining Co. West Frankfort, IL
	1996	Michael K. Reilly, Zeigler Coal Holding Co., Fairview Heights, IL
	1997	Fred Bowman, IL Office of Mines & Minerals, Springfield, IL
		Heinz H. Damberger, IL State Geological Survey, Champaign, IL
	1998	Ron Morse, IL EPA, 2309 W. Main Suite 116, Marion, IL
	1999	Joseph S. Spivey, President, IL Coal Assoc., Springfield, IL
	2000	Richard Mottershow, IL Div. Of Mines & Minerals, Springfield, IL
	2001	Stephen E. Sharp, General Manager, Arch Coal Co., Waterloo, IL
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^{*} Affiliations listed are at time of award.

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WEDNESDAY

PROCEEDINGS OF THE ILLINOIS MINING INSTITUTE

ANNUAL MEEETING
109TH YEAR
Collinsville, Illinois
Tuesday and Wednesday, August 27-29, 2001

The opening session of the 109th Annual Meeting of the Illinois Mining Institute was convened at 9:45 a.m., Tuesday, August 27, 2001, in the LaSalle Room of the Gateway Center, Will Border, President of the Institute presided.



Office of Mines and Minerals: Your Industry Support Agency Neal Merrifield



Illinois is Rich in Mineral Resources

Coal

Illinois has the largest reserves of bituminous coal in the United States. With an annual output of approximately 40m. tons, Illinois ranks seventh among the coal producing states. Coal has been mined in the State since the early 1800's. From the 1880's to the present, about 5.7 billion tons have been mined in 71 counties. It is a valuable source of jobs employing 3,500 coal miners and provides employment for about 10,000 additional workers in related manufacturing and service industries.

Oil and Gas

Oil and gas is produced in 40 counties with an average annual yield of 13 million barrels that has a current annual value of \$325 million in gross sales. Illinois ranks fifteenth among the nation's 29 oil producing states. The oil and gas industry currently employs 2,000 individuals.

Non-Fuel Minerals

More than 120 million tons of aggregate minerals are mined yearly. This activity occurs in 81 of the State's 102 counties which encompass more than 400 facilities. The State ranks seventeenth in the nation's mineral extraction with an estimated worth of \$945 million. This figure is derived from the following: crushed Stone \$422 million, construction and industrial sand and gravel \$226 million. Portland cement \$213 million and \$84 million in other minerals.

Illinois is one of the country's leaders in the production of industrial sand, construction sand, crushed stone, gravel and Portland cement. Here is a breakout of our national standings in industrial minerals production: first in industrial sand and Tripoli; third in peat; fifth in crushed stone; sixth in fuller's earth; ninth in construction sand and gravel; and, finally tenth in lime.

An Overview of the Office of Mines and Minerals

The Illinois Department of Natural Resources' Office of Mines and Minerals has long been regarded as a regulatory agency. Created in 1917 to ensure the health and safety of the State's coal industry it currently comprises four Divisions. The Oil and Gas Division began in 1939 as a means of regulating the oil and gas industry with the implementation of permitting and drilling requirement. In 1962 the Land

Reclamation Division was formed in response to the Open Cut Land Reclamation Act, which was the first of several laws enacted to address the condition of postmined areas. The Abandoned Mined Lands Reclamation Division started in 1977 to oversee the correction of many hazards and environmental problems that arose from early coal mining. The Blasting and Explosives Division originated in 1996 to enforce regulations concerning the handling, storage and use of explosives.

However, the Office of Mines and Minerals' role is changing and expanding. We want to be thought of as a SUPPORT AGENCY.

Mine Safety and Training

The Mine Safety and Training Division have the responsibility of ensuring the health and safety of the workers in the State's coal industry. Using the regulatory authority found in the Coal Mining Act and the Illinois Surface Health and Safety Rules and Regulations, the Division works to minimize and reduce the risk of injury to the State's mining workforce. The Division performs four functions.

Mine Inspection - Six State Mine Inspectors conduct monthly inspections of all underground and surface coal mines, surface coal facilities and carbon recovery operations to ensure that they are complying with State laws and regulations.

Mine Rescue – The State's three mine rescue stations are located in Benton, DuQuoin and Springfield. All three are equipped to respond to emergencies at any of the State's underground coal mines. These stations have trained mine rescue teams that are prepared to assist in any underground mine emergency.

Mine Certification – The Mines Safety and Training Division require certification for all coal industry supervisory personnel as well as certification for other functions found within the coal industry. The Division provides class room instruction to aid applicants in achieving certification for various titles. Examinations are offered semiannually.

Land Reclamation Division

Since the first reclamation laws were legislated in 1962, 197,000 acres have been affected by mining. There are currently almost 90,000 acres that are permitted. The Division administers the Surface Coal Mining Land Conservation and Reclamation Act of 1980 (SCMLCRA) in compliance with the Federal Surface Mining Control and Reclamation Act of 1977 (SMCRA).

The Division reviews and issues new mining permits. It provides existing background information for permit areas that had been previously permitted, including GIS coverage. A histories pre-application date review is offered to the industry at no charge. In order to expedite permit processing, a new application form is being developed along with an electronic permitting procedure to facilitate faster and easier review.

The Division inspects permit areas for regulatory compliance advising industry personnel on field and operation conditions to preclude a noncompliance. It also counsels the industry on upcoming data submittal deadlines.

Permit areas are inspected for bond release eligibility. The Division confers with companies on bond release requirements. Operators are encouraged to submit bond releases in a timely manner.

Coal exploration is monitored and areas of approval recorded. Educational opportunities are provided to the public and schools to increase the community's understanding of mining and its importance to the State.

Oil and Gas Division

The overall goal of the Oil and Gas Division is to implement a statewide oil and gas regulatory program that ensures protection and proper development of the State's oil and gas resources. Environmental integrity is preserved during exploratory drilling, development and production operation.

Since the onset of commercial oil production in the early 1890's over 150,000 wells have been drilled. There are 31,000 oil and gas wells still active along with 9,500 Class II injection wells. The Division is responsible for implementing rules and regulations to govern the drilling, operation and abandonment of these wells. On an annual basis, the Division will issue between 750 and 1,000 drilling permits; respond to 300-500 crude oil and brine spills; investigate over 200citizen complaints; and, conduct approximately 20,000 well inspections annually. The Oil and Gas Division administers the Plugging and Restoration Program. Funding is derived through industry fees which generate approximately \$500,000 yearly. This allows the plugging of about 100 wells per year.

The Landowner Grant Program is entirely funded to Illinois First monies and is considered to be highly successful. This program provides grants to landowners to plug abandoned oil and gas wells on their property. In the last two years over \$2.6 million in grants have been awarded, plugging 735 wells.

Blasting and Explosives Division

Illinois uses over 100 million pounds of explosives on an annual basis. Eighty-five per cent of these explosives are used by the mining industry. There are over 900 certified explosive storage magazines.

This Division has program responsibilities in three areas: the enforcement of blasting regulations at coal and aggregate surface operations; the enforcement of regulations relating to aggregate surface mining and reclamation; and, the enforcement of regulations relating to the storage, possession, and use of explosives. To accomplish these mandates the Division issues aggregate mining and reclamation permits. It conducts site inspections of aggregate surface mining operations to determine compliance with blasting and reclamation laws. Inspections of all surface coal mines are preformed to determine compliance with blasting regulations. Site inspections of all explosives storage magazines are carried out. Blasting and explosives training classes are provided to the industry. The Division also regulates display fireworks.

Abandoned Mined Lands Reclamation Division

The Division administers Title IV of the Surface Mining Control and Reclamation Act of 1977. Since its inception, the program has reclaimed 9,324 acres and sealed 1,153 mine openings at a total cost of \$145 million. It is 100% federally funded and is charged with the responsibility of overseeing the reclamation of eligible abandoned coal mines throughout the State.

The Abandoned Mined Lands Reclamation Division operates two primary programs – emergency and regular construction. The emergency response program was established in 1984 and affords a rapid response to eligible abandoned mine related problems that pose an immediate danger to public health and safety. Types of emergency projects include mine shaft openings in residential areas, mine refuse fires in communities, methane leaks that threaten homes, or commercial and residential structures impacted by underground abandoned mine subsidence. Since the program's creation 236 emergencies have been abated.

The regular construction program reclaims abandoned coal mine sites and addresses mine related hazards that are health and safety related, but are not of an urgent nature. This is accomplished through an eligibility prioritized system. It offers effective long-term reclamation solutions.

The Division also maintains a comprehensive, statewide subsidence monitoring program. This program not only aids in the determination of the extent of active subsidence events, but also is utilized to assist in the identification of areas of potential future movements.

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New Initiatives

Aggregate Blaster License Renewal

July 1, 2002 marks the first renewal date for the aggregate blaster license program. Over 300 licenses will expire on that date alone. In order to assist with the industry through this renewal process, the Blasting and Explosives Division will schedule renewal examinations during the winter months in order to accommodate this typically slower period for aggregate operations. Examinations will also be conducted at the various mine sites to reduce or eliminate travel expenses for most operators. This in many cases will allow blasters to complete the renewal requirements at their place of employment.

Next Step to Zero

A new aggressive accident prevention program is being undertaken by the Mine Safety and Training Division. Because Illinois' Lost Time Accident (LTA) rate is higher than the national average, a goal has been set to reduce the State's LTA rate by 50% during the course of the next four years (2005). This is not a regulatory function but instead is an example of how we want to be a support agency for the industry.

In order to achieve this coal, the Office of Mines and Minerals will be offering several services to the coal and metal/nonmetal industries. We will provide accident and injury analysis to identify problems and trends within the industry. Effective accident prevention training can be presented both in the classroom and on the job site. We are developing training materials and videos to assist you in operating your facility safely.

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PHILLIPS FREEDOM CAR TOM CUSHMAN



Phillips Machine Service, Inc. Proudly Presents The FreedomCar

FOR THE FUTURE

Phillips Freedom Car

- > New for Year 2001
- Based on Proven Concepts
- > Based on Proven Components
- Operates as a Shuttle Car or Loop Hauls like a conventional Coal Hauler



Overview

- > The Freedom Car was designed to shuttle the coal from the miner to the feeder breaker.
- The Freedom Car does not have to turn around to have the loading end pointed at the continuous miner or the dumping end at the feeder breaker.
- The Freedom Car was designed around proven shuttle car type component parts.

Features & Benefits

- > Backed by Phillips Machine Service, Inc.
- > All the efficiencies of a shuttle car without the trailing cable.
- Shortest round trip travel distance from the feeder to the miner and back provides for increased battery life.
- > Highly efficient electronics help to conserve battery power.

Features & Benefits

- > Rated payload 19 US tons (17 tonnes).
- > Turns a 90 degree corner in a 18 foot (5.5 meter) wide entry.
- Can be configured to place the operator on either side of the car to match the continuous miner operation.

Features & Benefits

- Solid state electronics give the operator complete control of tramming and conveying.
- > Full-time Four Wheel Drive.
- > Electronic Traction Differential Action.
- > This provides full power capability to each wheel through turns.
- > Four wheel steering allows unit to track through turns instead of skidding.
- Infinitely variable speed control for both traction & conveying.

Features & Benefits

- > New heavy duty frame construction utilizing special steels at high stress areas.
- Simplified frame design eliminates the discharge conveyor boom, strengthening the frame and adding carrying capacity.
- > Tire wear is reduced by mounting the batteries in the center of the car, allowing the tires to carry equal loads.

Features & Benefits

- Specially designed batteries give maximum life and performance.
- Two types of specially designed batteries are available (Flat Plate @1000 Amp/Hour rating and Tubular Plate @ 1240 Amp/Hour rating).
- Automated battery watering systems available to reduce maintenance time and costs.

Battery Life

- > Less travel distance.
 - Consumes less energy per trip
 - Less kilowatt-hours consumed per ton
- > More tons per charge cycle.
- > Does it last a shift? Does an articulated hauler battery last a shift?
- > Cost per ton is lower on the Freedom Car.

Features & Benefits

- > Battery Changing Methods
 - Forklift / Utility Battery Vehicle
 - Monorail Changing System
 - Ground Based Changing System
 - Specially Designed Battery Changing Vehicle
 - Platform Based Battery Changing Station





www.allescorp.com

A. L. Lee's Miri-Tracis the perfect mathere to compliment the Philips Freedom Cer. Changing out the batteries on the FreedomCar using a Min-Trac equippe d with finks is quick, easy, and safe. Using the Mini-True allows the change out process to occur doser to the face reckeng the time the FreedomCer is out of service for battery changes. A typical battery changeout can be completed in less than Fifteen minutes.

When not changing betteries the Mini-Tracis the perfect utility vehicle It's smell size, mobility, and lifting strength make it ideally suited to for many different material handling tasks around or in the mine. It can be used to unload flat cars of supplies, clean belts, scrape roachways, deliver applies to the bolter, hang cables with its men lift attachment, rock chast in hard to get to places with is TDT finger chaster, just to mens a few. The Mini-Trac is evailable with two power packs, a clearl engine or a beltery powered electric motor.

A. I. Lee has been manufacturing the battery and disrel powered articulated utility vehicle called the Mini-True for 6 years. The se are approximately 115 units in the field RAG's muses have suc

- Two at Kingstenthat have been there since 1998.
- One at Laurel Creek that has been in service a year.
- There at Rockspring Development; two were delivered in 1997 and one in 1999.

A.L. Les also manufactures the Lee-Time. It is a crawler manufed machine with the same fusions and atachments as the Mini-Trac. The Lee-Time is highly mensure also with the shilling to turn in a small ratios. In 1999 Reently Mile Coal bought the first A.L. Lee-Lee-Time. This unit is described, a battery powered unit is in the design stage.

Battery Powered Mini-Trac

- * Flactor Maker | 123Valt DC, 3D FP Halogen Lights, From and Pear

 - Strobe Light and Back-up Alarm Hydrostatic Transmission Pump with Electric
 - Displacement Cortrol Low Speed, High Torque Wheel Meters (1 Motor each Wheel)
 - Transmission Controlled by Foot Pedals for Both
 - Speed and Direction Hydraule PTO - 18 GPM @ 1500 to 1800 PS1

 - Center Articulating Section
 7.50 x 15, 20 Ply Tires, Rated for 6,900# each

- Campy, MSHA Approved, Adjustable
 Overhead Cover Fixed (not MSHA approved)
- L-H-D Bucket
- Ejector Backet
- Swivel Ejector Bucket
- Scraper Ann
- Grading Blade
- TDT Flinger Duster (must have Ejector Bucket)
- Bathry Change Out Kit
- MSHA Approved

parionia, homopa	SPECIFICATIONS
Estimated Weight	13,000# with batteries
Over All Height	30" to 48"
Ground Charance:	6" to 12"
Width	72**
Wheel Base;	88"
Approximate Length:	14'-0"
Stering Angle (Max.)	90 degrees total, 45 degrees each aid of center
Lift Capacity	8,000 lbs. Approximate
Approximate Inside Turning Radius:	8'-2"
Approximate Outside Turning Radius:	12'-10"
Maximum Speed:	6-7 MPH (Approximate)
Fork Leigth:	36", 42", 44" or 48"

Diesel Powered Lee Trac

Features:

- MSHA Approved Diesel Engines, Deutz or Isuzu
 /2 furp File IndDF

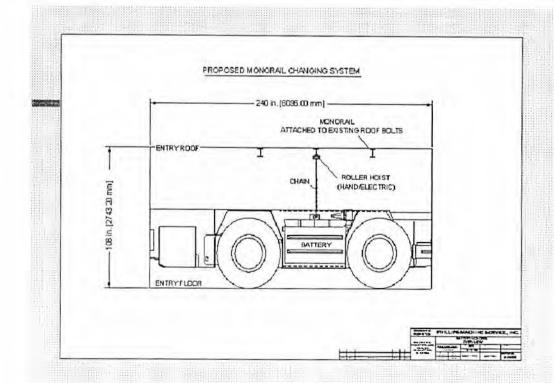
 - Halogen Lights front and rear
 Tandem Hydrostatic Transmission with Electric Displacement Control

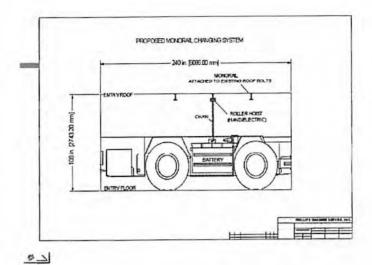
 - Double Rectortion Planetary Crawbs Draws
 Internal Wet Disc Brakes
 Internal Release, Spring Applied Period margency Stop Brakes
 - Hydraulic Functions Powered by an Auxiliary Gear
 - Pump Hydraulic PTO, 18 GPM @ 2000 PSI
 - · "ToyStick" Control
 - Fire Suppression

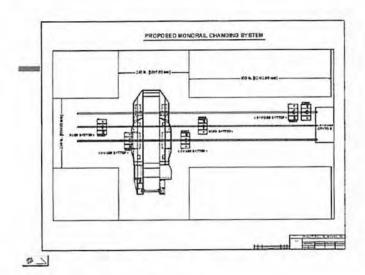
- Op tions:

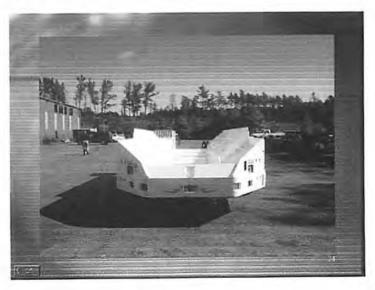
 MSHA Certified Adjustable Canopy
 LH-D Burket
- Ejector Bucket
 Swivel Ejector Bucket
- Scraper Arm
 Grading Blade

S	PECIFICATIONS
Estima ted Weight:	11,000# with MSHA Approved Ganopy
Ground Pressure:	57 PSI
Gradeablity	20 % (Max. Recommended)
Height:	66 1/2" - 73 1/2" with Canopy
Length	10.6" (Approx.)
Width	50"
Ground Clearance:	912"
Approx. Turning Radius	6'-10" (Splitting the Track without Attachments)
Maximum Speed	6 MPH
Fork Lift	76" Above Grade
Fork Drop	3" Be bw Grade
Fork Length:	36", 42", 44" or 48"
Lift Capacity:	8,000# (Appaox.)
Drawber Pull	6.000# (Nominal)







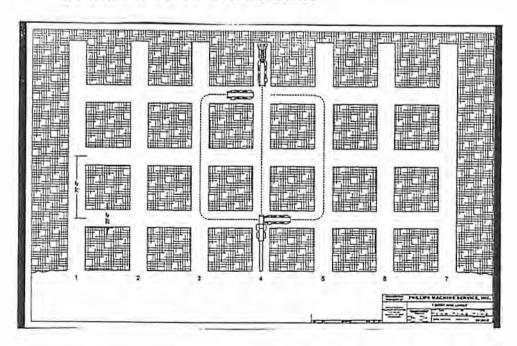


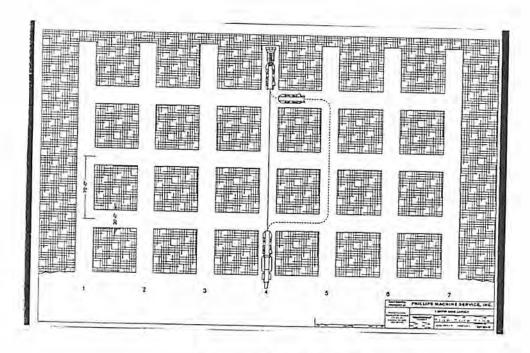
Applications

- The Freedom Car can be used anywhere that a conventional shuttle car, diesel hauler, or battery coal hauler can be used.
- The Freedom Car can be used as a third or fourth haulage vehicle when using cable type shuttle cars.

Haulage Routes

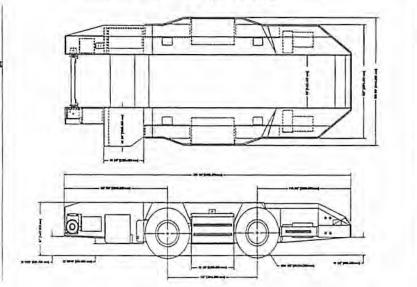
- > Increased flexibility versus articulated Haulers & Cable Shuttle Cars.
- More efficient use of a three-way dump Feeder.
- More flexibility in handling breakdowns in the travel route.
- > Less problems in handling breakdowns at the Miner or the Feeder.

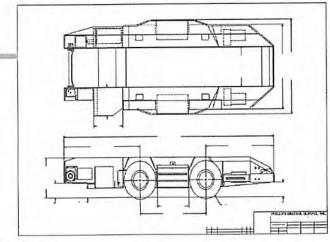




Specifications

- > Overall length 356" (9025mm) .
- > Body width 121" (3074mm).
- > Maximum width 136" (3445mm).
- > Maximum width 136" (3445mm).
- > Wheel Base 112" (2845mm).
- > Rated payload 19 US tons (17 tonnes).
- > Gross vehicle weight including batteries 60,000 lbs. (27,216 kg).









Freedom Car Volume Calculations March 22, 2001

Coal Density

56.4 lbs./ cu.ft.

Loaded

95,330 lbs.

-Empty

61,125 lbs.

34,205 lbs.

34,205 lbs. ÷ 56.4 lbs./ cu.ft.

= 606.5 cu.ft.

606.5 cu.ft. (65 lbs./ cu.ft.)

= 39,422.5 lbs.

÷ 2000 lbs / ton

= 19.71 tons

Specifications

- > Tire size and type 14.00 x 24 x 28 ply Goodyear Permafoam.
- Tramming speeds 4 mph to 6mph (6.4 to 9.6 km/hr).
- Conveyor discharge time 30 40 seconds nominal.
 - Note: Tram speeds and conveyor discharge times will vary with machine spec's and mine conditions.
- > Full time four wheel drive.
- > Wet multi-disc brakes.

Specifications

- > Pump motor sizes starting at 10 Hp (7.5 kW).
- > Traction motor sizes starting at 30 Hp (22 kW).
- > Conveyor motor sizes starting at 30 Hp (22 kW).
- Option to have the same tram and conveyor motors for better component exchangeability.
- All motors are controlled by solid state devices for safety, control, and better battery management.

Specifications

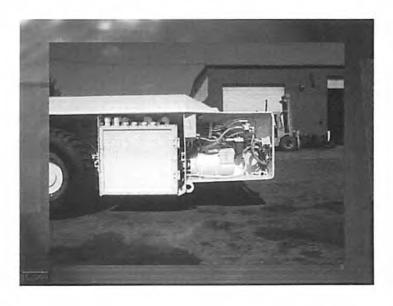
- > Heavy duty type conveyor reducer.
- > 4.1 (104mm) pitch conveyor chain.
- > Heavy duty fabricated flight bars.
- Service cylinders mounted on each corner of the machine help make required maintenance tasks easier.
- > Heavy duty steering components.

Operating Costs

- > Shuttle Car is historically low cost.
- > Articulated Haulers typically 2 1/2 to 3 times higher.
- > Tire cost lower on Freedom Car.
 - Electronic Traction Differential
 - Four Wheel Steering
 - Four Wheel Drive
 - Equal Weight Distribution
- Battery cost should be relatively equivalent.
- > Electronic Traction Differential.
 - Less deterioration of floor conditions
 - Less stress on tires
 - Less stress on all other components
- > 30 years of proven Shuttle Car components.







Pricing

- Pricing for new machines is comparable to the existing battery haulage vehicles used in mining operations around the world today.
- Operators with fleets of cable cars can send their cable cars to Phillips and have them returned as battery cars. This conversion saves money and reduces the need to acquire new inventories of spare parts.
 - Note: Savings are dependent on machine specifications.

Freedom Car

FOR COMPLETE INFORMATION

Call Phillips Machine Service, Inc. @ 304.255.0537

Phillips Sales Force

- > <u>Larry Miller</u> @ 724.539.8959
 - Ohio, Penn., Northern W.V.
- Cliff McKinney @ 304.252.8572
 Southern W.V and Parts of Eastern Ky.
- Jeff Grizzle @ 540.889.5619
 South Western Va., Parts of Eastern Ky., Ala., Tenn.
- Reggie Farlaino @ 270.338.1724
 West Ky., Ill., Ind., and the Western U.S.
- > John Combs @ 606.337.9001
 - Sales Manager

OVERBURDEN BLASTING

WILLARD PIERCE



In Illinois approximately one hundred million pounds of explosives are detonated annually. This equates to almost 250,000 pounds on a daily basis. When discussing blasting and explosives with the general public they envision imploding buildings and the pyrotechnics used by the special effects industry. Although the public thinks they know all about explosives, because of the "Hollywood" influence, we know better. Mining accounts for the majority of explosives used throughout the world.

These are exciting times in the blasting and explosives industry. There are advancements in the mixtures of chemicals and compounds in the explosives. There are advancements in the detonators and firing systems used by the industry. There are advancements in the engineering tools available to the blaster which enables better blast designs on a daily basis.

There are "High Tech" tools available today that were not even imagined ten years ago. The development of electronic detonators is the premier example. These detonators will provide precise timing and the flexibility of unique delay sequences. Using this technology, the blaster will be able to focus the explosive energy and enhance fragmentation, while at the same time, control the adverse effects from blasting in the surrounding communities.

Highwall profiling has been around for more than ten years, but more recently the question becomes "Are you using a 3-D profiler?" These survey instruments, along with complex software, allows the blaster to see exactly how much rock is in front of each borehold. The software is designed to tell a blaster where the smallest and largest burdens are in relation to each pound of explosive loaded.

Historically, a variety of methods have been employed to establish drill hole locations. At times, some operators have taken the initiative to survey the location of each hole. However, there have been many blast patterns laid out by chance alone. Now, highly accurate G.P.S. devices can pinpoint drill hole locations. Borehole tracing devices are being used to measure drill hole wander. Soon there will be the availability of G.P.S. in the drill bit itself and the computerized driller will compensate, real time, while actively drilling.

In the past, it took a truck load of equipment and a pocket full of money to operate a Velocity of Detonation Recorded (VODR). The same was true for seismographs. Today, with the low cost of electronics and computers, these devices can be utilized with a fraction of the resources previously required.

Previously, the only way a blast could be filmed was with a high speed camera costing a capital outlay and many man-hours per blast. Today, a \$200 video camera can be easily operated to get fantastic results and affords instant replay capabilities.

Of course, all of these gadgets cost money and some are very expensive or at least very time consuming. However, there is a time and place for each of these design, engineering or application tools.

With all of these "High Tech" wonders, along with the long list of consultants, operators are generally inclined to most often use these avenues only after a problem has been encountered. This by itself, may not be all bad. However, experience shows that most problems are fundamental in nature. Whether it is complacency (this is the way we have always blasted, even though the rock is changing everyday) or making blast design decisions (changing burden or spacing to save drilling cost, without changing drill hole size or explosive type) independent of other variables, which remain fixed, can slowly but surely lead to blasting problems.

The fundamentals of blasting and blast design have to be in order before a company can implement the "High Tech" options listed above. Throwing money at a problem that has not been identified will only cost more money. In order to maintain a productive blasting program one must continually ask two question:

- 1. Why am I doing "it" this way?
- 2. How can I do "it" better?

"It being defined, of course, as each and every part of the blasting design.

With all that said, how does one go about doing a safer and more productive blast, while at the same time keeping costs down? A blaster should establish a procedure for evaluation his blasting techniques. Basically, it involves comparing blast design with results. Your next blast design actually starts with the detonation of your last blast. One example of how this may be illustrated is with the following list.

- 1. View the previous blast or better yet video it to watch for venting, blowouts and direction of movement.
- 2. Study the muckpile, look for a misfire. What is the shape, are there any slumps, how far did it pull from the wall?
- 3. Study the wall after it is uncovered, look for humps on the face, crushing between holes, how much toe is there, any overhang left behind, are the borehole casings visible from top to bottom?
- 4. Study the top, is there loose material, how much mud is on top, has the bench been properly prepared for drilling?
- Lay out the borehole locations for next shot. The blaster must know borehole size, shape and condition of face. Also, the d3sired fragmentation size, based upon handling equipment, including crushers at quarries.
- Explosive selection based upon dry or wet holes, the type of rock being blasted, differing layers or strata or rock.
- Delay sequence to be used is based upon the intended movement and geometry of the pattern which also
 depends on the pounds of explosives allowed per delay interval. This can be a regulatory requirement or a
 company policy issue.
- Decking and stemming requirements. Do you use drill cuttings or sized crushed stone? The size of the hole will determine decking height and the size of the burden will determine top stemming height.
- 9. Is additional cover necessary? Do you use pushed material or blasting mats?
- 10. Clearing the blast area. This requires that the entire area is cleared of unauthorized individuals. This clearing is best achieved when all blockers meet at the blast and then travel the route to their blocking locations. This ensures that no assumptions are made about the possibilities of persons in the area between the blast and the blocking locations.

- 11. Securing the blast area. After following 10 above, the blockers are now in a position to keep unauthorized individuals from entering the blast zone. Maintaining radio contact will allow notice to the blaster if anyone enters the blast area. Blockers must know the meaning of the warning and all-clear signals.
- 12. Detonation. It is advisable that the blaster has a commanding view of the blast. If not, this can be accomplished with a video camera. Remember, safety has to be a priority during detonation.
- 13. Inspection of blast and all clear signal. The inspection of the blast must be conducted to ensure that all explosives were detonated and that there were no misfires. Only when it has been established that travel can be safely resumed through the blast area can the all-clear signal be given and the blockers can let traffic resume.

This is only an example of a list of the observations, decisions and actions that a blaster should be making before, during and after each blast. If a similar procedure is not routinely followed by individuals responsible for the blasting operations, complacency has set in and although the job may be productive, it may not be the best that it can be.

One other issue in the discussion about blasting is the very important question "Who's in charge?" In the field of blasting the question points back to the certified or licensed blaster. However, in reality, this often means that the blaster is responsible for many thinks, but has authority for only a few things. What has to be recognized at all levels of management is that blasting is the most cost effective way to fragment rock and at the same time inherently dangerous.

Therefore, it is advisable that those persons assigned the important responsibility of blasting, must also be recognized, within that blast area, as the ultimate authority. This can be cumbersome when dealing with contract blasters. However, whoever has the responsibility for blasting must be given the final authority, even over other operations within the blasting area.

This should be a well thought out written document. Everybody wants to be in charge until there is a problem. If someone is held responsible, then that person should have the authority to adjust the situation or how can he be held responsible? It is a circular discussions that only has one logical resolution.

Mark Withey, a tremendous blaster with over 30 years of experience, once stated that one of the worst things he has witnessed within the industry is really a phrase. It's the answer to question, "Why are you doing it this way?" and the answer comes back as "That's the way we've always done it." Mr. Withey reminds us that "If you only do what you've always done, you will only get what you've always gotten."

Whether we are regulators, operators or contract blasters, it is an important aspect of our everyday reality that we work toward doing our job better today than we did yesterday.

BOB ELAM MINE SAFETY AND HEALTH ADMINISTRATION



INTRODUCTION

It's a real pleasure to be here today. I'd like to thank the Illinois Mining Institute for this opportunity to address this group. I'd like to commend each of the teams that will participate in the mine rescue contest tomorrow. I'd also like to congratulate the Sentinels of Safety winners that were announced earlier this week. One of the winners hails from Illinois Material Service Corporation's Thornton Quarry has won in the Quarry Group. They achieved 208,816 employee work hours without an injury that resulted in lost work days in 2000. Congratulations to Thornton Quarry and all the other winners!

Dave Lauriski, MSHA's newly appointed Assistant Labor Secretary, regrets that he was unable to be here today, but he has asked me to pass along some of his views and goals for the Agency—as he sees them—for the next four years.

Safety issues

The mining industry's health and safety record has greatly improved over the past few decades. We can take great pride in the numbers. These strides took on some perspective two weeks ago in Beckley, West Virginia.

The National Mine Health and Safety Academy just celebrated a noteworthy anniversary. Twenty-five years ago this month, the Academy opened its doors for mine safety and health training.

Since 1976, hundreds of thousands of mine inspectors, miners, mine operators and other industry personnel from this country and around the world have walked through these doors and taken advantage of the Academy's vast array of resources, classroom instruction and hands-on activities.

The year the Academy first opened, there were 141 fatal coal accidents and 113 fatal metal and nonmetal accidents. Compare that with last year's figures of 38 fatalities in coal and 48 in metal and nonmetal. Of

course, we all realize that even one mine fatality is too many. Over the past five years, our progress in reducing fatal accidents has shown signs of slowing and may, in fact, have leveled off.

In terms of fatal accidents, the metal and nonmetal mining industry actually enjoyed its safest year in 1994, with a record low count of 40 fatalities.

The coal industry had its safest year in 1998, with a total of 29 deaths. Clearly, there is more progress for us to make. We need to consider injuries that are not fatal. All of them have a personal impact on miners, their families, and the mining community.

Included in this burden is an economic effect on the miners, their families, and the companies that employ them. Preliminary figures show that last year, coal miners experienced more than 6,000 nonfatal, reportable injuries. Metal and nonmetal miners experienced more than 9,000 such injuries. About two-thirds of the reported injuries were severe enough to cause lost work time.

To put that in perspective, the nonfatal injury record for the mining industry in recent years is substantially better than in the past, but like fatal accidents, has showed signs of leveling off. With some 15,000 individual incidents, it is obvious that there is significant room to improve.

Improving the health and safety of the mining industry also should improve the economic performance as well. Costs of every injury and illness include medical treatment, lost productivity, lost earnings, and downtime. There is the cost of conducting an investigation, administrative costs, increased workers' compensation costs including workers' compensation premiums, and often, damage to mine equipment and property. There may be a cost in terms of moral and job turnover.

A recent study, on a preliminary basis, suggests the cost of the average lost-workday injury in mining could be on the order of \$10,000 to \$30,000 per incident. That figure does not include job-related illnesses. Good health and safety performance contributes to high productivity, lowers costs, and enhances job security.

It is obvious that to achieve further progress will take more than just to keep doing what we are doing. The fact that the progress has slowed indicates we need to do something more.

What is "something more"? Let me use an actual mine as an example. During 2001 alone, this mine has experienced three fatalities. Our records show that we inspected this mine on a regular basis. But apparently that wasn't enough. Obviously, enforcement alone isn't enough. We need to step up education and training and compliance assistance at this operation, and other operation like it.

15-50 initiative

We at MSHA have set specific accident reduction goals for reducing fatalities, injuries and illnesses annually throughout the mining industry. These include an annual reduction of 15 percent in the fatal injury incidence rate and a 50 percent reduction in the NFDL rate over the next four years.

When we achieve these goals we will have an average NFDL rate of 1.72 and will have reduced the number of fatalities by 45.

On the health side, we've set specific performance goals as well. We need to reduce the percentage of respirable dust samples in coal mines exceeding the applicable standards by five percent per year for designated occupations. We need to reduce the percentage of silica samples in metal and nonmetal mines exceeding the applicable standards by five percent per year for high-risk occupations, reduce the percentage of noise exposures above the action level that would trigger a citation in coal and metal and nonmetal mines by five percent; and reduce the number of citations/orders of the diesel particulate matter regulation cited in coal and metal and nonmetal mines.

Beyond that, we are going to be looking at our own health and safety performance and aggressively acting to reduce MSHA's own injury and illness rates. We have an obligation to ourselves, our families, our stakeholders and the taxpayer to perform in an exemplary manner.

All this is even more critical in light of the recent increased demand for energy and minerals. Throughout the Eastern coalfields, mine operators are reporting increased demand and, in many cases, they are reporting shortages of qualified miners to meet that demand. We also have an increased demand for stone, sand, gravel and other construction mine5als in some parts of the country.

There is a real concern as to where the new miners are going to come from, with young people not wanting to work in mines and not having enough experienced miners to draw from.

It is possible to gear up production without seeing a rise in accidents as well. We all need to be sure we do not allow our progress in safety and to be compromised in this process. Engineering and technical fixes will be part of the mix. Along with Secretary Chao, Mr. Lauriski is very much interested in new solutions to old problems that 21st century technology may be able to supply.

The Human Factor

Clearly, we also need to address human actions. While many—perhaps most—accidents have multiple causes, human behavior is the biggest part of the equation.

In conducting accident investigations, for instance, we need to pay attention to facts, not fault. What happened? What was the actual sequence of events? What causation factors were identified, and so on?

Ultimately, finding facts determines responsibility. That is quite different from starting out with the idea of finding blame. An inappropriate focus on blame just teaches people to be apprehensive and defensive. A close, respectful attention to facts will teach us how we can prevent similar accidents in the future.

As useful as it is to learn from serious accidents, it is even better to learn to prevent accidents before they happen. That includes giving our attention to "near misses".

Every year in the mining industry, as in every area of life, we do see, and in many cases, experience incidents that might possible have had very serious consequences. We must take these occurrences seriously, treat them as warnings, and use them as opportunities to make changes before someone is harmed.

Stay Out-Stay Alive

And what about educating the mining community at large? The families of miners, the consumers who use mining products—which is virtually every member of modern American society. Now more than ever is a golden opportunity to enlighten the citizens of this country to the significant contributions all forms of mining make toward our daily comfort and progress.

That goes for the downside of mining as well. I'm talking about the inherent dangers that exist at mine sites, not just for the mine worker who, fortunately, is trained to head off danger and minimize personal risk, but for the individuals who have no idea what hazards they may be exposed to if they enter mine property unauthorized, unsupervised and untrained.

I'm referring to the explorer, the adventurer, the rockhound. The group of teens who head out to the "ole swimming hole" – the abandoned quarry outside of town—on a hot summer afternoon. Or the adventurous youths who take their ATV's four-wheeling at a remote strip mine. I can't well you how many of these incidents end in tragedy.

Over the past three years, more than 50 non-miners have died in accidents on active and abandoned mine property. Even though MSHA's enforcement authority does not cover abandoned properties, these numbers are too disturbing to ignore.

Consequently, "Stay Out-Stay Alive" was born. It's a public awareness effort aimed at keeping kids and adults safe from harm on mine property. Nearly 70 organizations around the country have joined this effort. These senseless tragedies might have been prevented with some education and enlightenment. I invite each and every one of you to join MSHA in our ongoing nationwide effort to "Stay Out-Stay Alive".

21st Century Issues

Safety and health in the workplace is one of Secretary Chao's most important priorities. It is part of the Department of Labor's annual performance plan. She has made it clear that the safety and health of the workforce is personally important to her.

In June, the Department of Labor held a summit on the 21st Century Workforce in Washington, DC. The summit drew thousands of participants and focused on three topics: the skills gap within the workforce, the demographic changes facing the workforce, and the future of the workplace.

These topics do not just concern the "high-tech" industries. They also concern us in the mining industry. In our Nation's mines, the workforce is aging. As demand picks up, we are finding a skills gap in come areas with a shortage of trained miners.

We need to think about the direction that our industry will develop during this century so that we can be proactive, not just reactive, in protecting miners' safety and health 10, 20, 30 years or more from now.

Listening to our Stakeholders

To achieve both our short-and long term goals, it is important that we in MSHA get in better touch with all of our stakeholders. Beginning this month, MSHA is hosting 22 meetings throughout the country. Among them: 9/11 Lake Shore Country Club, Madisonville, 6:30 p.m.; 9/12 Days Inn, Henderson Ky., 9 a.m.; 9/13 Rend Lake College, Rend Lake, IL., 9 a.m.

Managers and headquarters employees in MSHA need to get out into the field more and to reacquaint themselves with our stakeholders. We need to talk personally with miners, mine operators and managers, labor representatives, trainers, state mine safety and health officials and any others who can give us assistance or to whom we can provide assistance in the furtherance of our mission.

We need personally to see the mines and the operations for which we are responsible. If we fail to do this, we quickly fall out of touch. And when we are out of touch, it shows—in what we day, in what we miss, and most importantly in our decisions and actins.

All of our decisions need to come from a background of current, personal knowledge. We need to call on the creativity of the whole mining community. We need to challenge everyone to "think outside of the box" and move beyond the norm. All ideas are important. Every idea deserves thoughtful consideration and sometimes the most outlandish-seeming ideas, with a little adaptation, turn out to be brilliant.

All of our stakeholders deserve to be treated fairly, equally, with respect, and with dignity. Likewise, I would hope that our personnel receive the same treatment. That includes respect for differences in perspective.

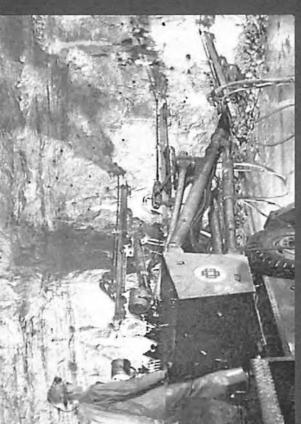
Representatives from labor organizations, management, manufacturers and other sectors will undoubtedly have different perspectives, yet they should still be able to talk together respectfully and reasonably and work things out. Representatives from the coal sector will likely have a different perspective from the metal and nonmetal sector.

We will ask you to work with us on outreach programs to help involve everyone in the mining community in protecting miners' safety and health.

Closing

Please give us your best creative thoughts on how we can accomplish our mission even better than before. Always feel free to give me your best advice, whatever that may be. If you have concerns or ideas that need to be brought to my attention, let us know. All of us in the mining community should feel a sense of excitement about what we can do to enhance our health and safety performance.

At the end of each day, each of us should be able to look back knowing we have made a difference in improving safety and health for this Nation's miners and for their families. With our best efforts and creativity, I know we can achieve outstanding progress in protecting miners' safety and health. Thank you.





Review Of MSHA Noise and Dust Regulations For M/NM Mines

HARDROCK: DUST, NOISE CONTROL AND DIESEL PARTICULATE

COAL: DUST, NOISE CONTROL AND DIESEL PARTICULATE

BY

BILL POMROY

MSHA

TOPICS

■ Noise Lessons Learned During

The First Year Of MSHA's

New Part 62 Noise Rule

■ Dust What's New?

Part 62 Noise Rule

Review Of Part 62

■ Most Frequent Violations

■ Looking To The Future

OVERVIEW OF NEW NOISE RULE

Proposed Rule Published Dec. 17, 1996

Public Hearings, Written Comments

Final Rule Published Sept. 13, 1999

Rule Became Effective Sept. 13, 2000

NEW NOISE RULE

§ 62.100	Purpose and Scope
§ 62.110	Noise Exposure Assessment
§ 62.120	Action Level
§ 62.130	Permissible Exposure Level
§ 62.140	Dual Hearing Protection Level
§ 62.150	Hearing Conservation Program
§ 62.160	Hearing Protectors
§ 62.170	Audiometric Testing
§ 62.180	Training
§ 62.190	Records

§ 62.100 PURPOSE

Prevent the occurrence and reduce the progression of occupational noise induced hearing loss among miners

SECONDARY PURPOSE

"Harmonize" MSHA Coal and MNM Rules, and OSHA Rules

§ 62.101 DEFINITIONS

Access	Medical Pathology
Action Level	Miner's Designee
Audiologist	Qualified Technician
Baseline Audiogram	Permissible Exposure Level
Criterion Level	Reportable Hearing Loss
Decibel (dB)	Revised Baseline Audiogram
Dual Hearing	Sound Level
Protection Level	Standard Threshold Shift
Exchange Rate	Hertz (Hz)
Hearing Protector	As the support

Time Weighted Average 8-hour (TWA₈)

§ 62.110 NOISE EXPOSURE ASSESSMENT

NEW REQUIREMENT: Operator Must Evaluate Each Miner's Noise Exposure Sufficient To Determine Continued Compliance

■ Dosimeter or SLM OK

- + Dosimeter Accumulated Exposure Over Time
- + SLM Measures Instantaneous Noise Level
- □ Formula Provided For Determining Dose If SLM Used

§ 62.110 NOISE EXPOSURE ASSESSMENT

- No Adjustment For Hearing Protectors
- Must Include Permissible Exposure Level AND
 Action Level
- Miner/Miner's Representative May Observe Monitoring (Need Not Be Paid)
- Coperator Must Give Prior Notice
- Written Notification Of Results (15 Days)

§ 62.120 ACTION LEVEL

☐ If Exposure Equals or Exceeds Action Level, Miner Must Be Enrolled In Hearing Conservation Program as per § 62.150

Action Level is:

- +85 dBA for 8 Hrs = 50 % Noise Dose
- +84 dBA for 9 Hrs = 50 % Noise Dose
- +82 dBA for 12 Hrs = 50 % Noise Dose
- +81 dBA for 14 Hrs = 50 % Noise Dose

§ 62.130 PERMISSIBLE EXPOSURE LEVEL (PEL)

☐ If Exposures Exceed PEL:

- + Feasible Engineering and Admin Controls
- + Enroll Miner in HCP as per § 62.150
- + Admin Controls Must Be Posted & Provided
- + Overexposure Despite Controls May Be Allowed By MSHA, With Conditions
- + No Exposures Above 115 dBA Allowed

■ Permissible Exposure Level (PEL) Is:

- + 90 dBA for 8 Hrs = 100% Noise Dose
- + 95 dBA for 4 Hrs = 100% Noise Dose

§ 62.140 DUAL HEARING PROTECTOR LEVEL

When Exposures Exceed TWA₈ of 105 dBA or 800% Noise Dose:

- Ear Plug and Ear Muff Must Be Provided By The Operator
- Operator Must Ensure Dual Hearing Protectors

 Are Worn
- All Other Requirements For Exposures Exceeding the PEL

Actions Required By Operator

Section	Condition	Action Required
62.120	TWA ₈ < AL	No Action Required
62.120	TWA ₈ ≥ AL ≤ PEL	Enroll Miner in HCP
62.130	TWA ₈ > PEL	Use All Feasible Engr and/or Admin Controls; Enroll Miner in HCP; Ensure Use Of HP; Post & Provide Admin Controls
62.140	TWA ₈ > DHPL	All 62.130 Actions; Ensure Use of Dual HP

§ 62.150 HEARING CONSERVATION PROGRAM (HCP)

Required When Exposure Equals Or Exceeds Action Level (TWA₈ = 85 dBA, 50% Dose)

- Monitoring as per § 62.110
- Hearing Protectors as per § 62.160
- Audiometric Testing as per § 62.175
- ☐ Training as per § 62.180
- Record Keeping as per § 62.190

§ 62.160 HEARING PROTECTORS

- Provided at or Above Action Level
- Operator Must Assure Use:
 - + If Exposure At Or Above PEL; If STS Found
 - +If Audiogram Delayed 6 Months
- No Cost To Miner
- **■2 Muff-Type, 2 Plug-Type To Choose From**
- 2nd Choice if Medical Pathology Precludes 1st
- Training as per § 62.180
- # HP in Good Condition, Fitted, Maintained

§ 62.170 AUDIOMETRIC TESTING

§ 62.170	Audiometric Testing
§ 62.171	Audiometric Test Procedures
§ 62.172	Evaluation of Audiograms
§ 62.173	Follow-up Evaluation When an Audiogram is Invalid
§ 62.174	Follow-up Corrective Measures When a STS is Detected
§ 62.175	Notification of Results, Reporting

AUDIOMETRIC TESTING

WHAT? WHY?

- Standardized Method to Measure Hearing
 Thresholds (Hearing Sensitivity) at Various
 Sound Frequencies
- Indication of Hearing Impairment
- Does Not Prevent Hearing Loss
- Shift in Threshold Should Trigger
 Management Response (Training, Job Change,
 Hearing Protectors, . . .) To Prevent FURTHER
 Hearing Loss

AUDIOMETRIC TESTING

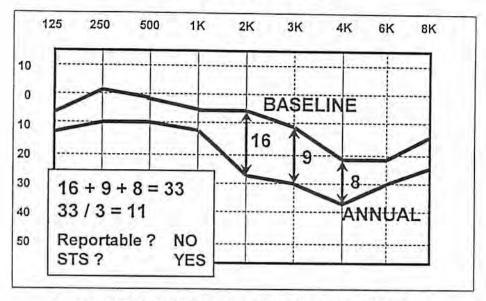
Reportable Hearing Loss:

Change for the Worse Relative to Baseline Audiogram (or Upward Revised Baseline) of an Average of 25 dB or More at 2000, 3000, and 4000 Hz in Either Ear

Standard Threshold Shift:

Change for the Worse Relative to Baseline Audiogram (or Revised Baseline) of an Average of 10 dB or More at 2000, 3000, and 4000 Hz in Either Ear

AUDIOGRAM



§ 62.170 AUDIOMETRIC TESTING

- Audiometric Testing Is Not Mandatory, But It
 Must Be Offered To All Employees Enrolled In
 A Hearing Conservation Program (HCP)
- If Provided, It Must Be At No Cost To Miner
- Conducted By A Physician, Audiologist, or Qualified Technician Under The Direction Or Supervision of a Physician or Audiologist
- Qualified Technician Means Certified by the Council for Accreditation in Occupational Hearing Conservation (CAOHC), or Equivalent

§ 62.170 AUDIOMETRIC TESTING

- Baseline Audiogram Offered And Provided Within 6 Months of Enrolling In HCP (12 Months If Mobile Lab)
- 14-hr Quiet Period Prior to Audiometric Testing; No Workplace Noise Exposure (May Use Hearing Protectors); Miner Advised To Avoid High Noise Levels At Home
- Baseline Fixed Regardless of Changes in Enrollment Status (New Baseline Allowed If Miner Away From Mine 6 Consecutive Months)

§ 62.170 AUDIOMETRIC TESTING

- Revised Baseline Audiogram: Annual
 Audiogram Must Be Deemed A Revised
 Baseline If STS Is Permanent, or Annual
 Audiogram Shows Significant Improvement
 Over Baseline

§ 62.180 TRAINING

Within 30 Days of Enrollment in HCP and Every 12 Months Thereafter. Must Include:

- General Requirements of Regulation
- Effects of Noise on Hearing
- Purpose, Value, Types, Advantages, Disadvantages, Care, Fitting, and Use of Hearing Protectors
- □ Operator's and Miner's Role in Maintaining
 Noise Controls
- Purpose and Value of Audiometric Testing

§ 62.190 RECORDS

- AR's, Miners, and Miner's Designee Must Have Access To All Required Records
- Miner's Rep Must Have Access To Training and Exposure Records
- Former Miner's Must Have Access To Exposure Records
- Exposure Notification, Audiometric Test, and Training Records Must Be Kept For Duration of Employment Plus 6 Months

§ 62.190 RECORDS

- Upon Request Of A Person Having Legal Access To Records, The First Copy Must Be Provided At No Cost; Subsequent Copies Must Be Provided At Reasonable Cost
- When Ceasing Business, Operator Must Transfer Records To Successor Operator; Successor Must Receive, Use, and Retain All Records As Per Part 62

Most Frequent Part 62 Violations

⊕ 62.120 Hearing Conservation
 Program

62.130 Permissible Exposure Limit

62.120 Hearing Conservation Program (HCP)

- **62.110 Noise Exposure Assessment**
 - + Mine Operator Must Establish A System Of Monitoring That Evaluates Each Miner's Noise Exposure...
 - + Mine Operator Can Utilize MSHA Sampling Results, Conduct Sampling, Estimate Noise Exposure . . .
- ☐ If Exposure Exceeds Action Level, Miner

 Must Be Notified In Writing Within 15 Days
- Mine Operator Must Retain Notification

62.120 Hearing Conservation Program (HCP)

- # 62.160 Hearing Protectors
- Don't Forget Ear Muffs
 - +Option of Muffs Must Be Offered
 - + Muffs May Be Preferable In Certain Situations

62.120 Hearing Conservation Program (HCP)

- # 62.170 175 Audiometric Testing
- Audiometric Testing Must Be Offered To Miners Enrolled In HCP
- Actual Testing Not Required Until 6
 Months After Enrollment
 - +12 Months If Mobile Lab Used
- Mine Operator Must Notify Miner Of Audiometric Test Results And Interpretation Within 10 Days

62.120 Hearing Conservation Program (HCP)

62.180 Training

- + HCP Training Provided Within 30 Days Of Enrollment
- + Every 12 Months Thereafter
- +Training Content Specified In Rule
- +Training Must Be Certified
- + Certification Retained For Duration Of Enrollment + 6 Months

62.120 Hearing Conservation Program (HCP)

Records Must Be Provided To MSHA Within 1 Business Day

LOOKING TO THE FUTURE

Records

- +Are Miners Who Were In HCP Last Year Still In HCP This Year ?
- +Did All Miners Who Accepted Offer Of Audiometric Test Actually Receive Audiometric Test Within 6 (or 12) Months?
- +Were They Notified Of Results/Interpretation?
- + Any Follow-Up Audiograms Or Follow-Up Corrective Measures ?
- +Part 50 Reporting?
- + Did All Affected Miners Receive Initial HCP Training and Annual Training?

Dust - What's New?

Review Of Dust Hazards And MSHA Regulations

DUST HAZARDS Hazard Depends On . . .

Composition Crystalline Silica
 Nuisance

Particulate

■ Concentration mg/m³

☐ Dust Particle Size Respirable Sized

Total Dust

Crystalline Silica

- 2 Types: Crystalline and Amorphous
- Crystalline Forms: Quartz
- Quartz Present in Most Rocks:

#	Silica Sand	95%+
A	Sandstone	50 - 95%
A	Shist, Slate, Shale	10 - 54%
A	Rhyolite, Granite	10 - 60%
A	Limestone	N/D - 65%

How Do You Know %? Lab Analysis

EFFECTS OF SILICA DUST

SILICOSIS

Lung Disease Caused By Prolonged Exposure to Respirable Dust Containing Crystalline Silica in Hazardous Concentrations

Lung Disease

- Disabling
- Incurable and Nonreversible
- □ Progressive
- Potentially Fatal
- **Linked to Cancer, Bronchitis, TB**

Respirable Silica Dust

10 Microns or Less in Size

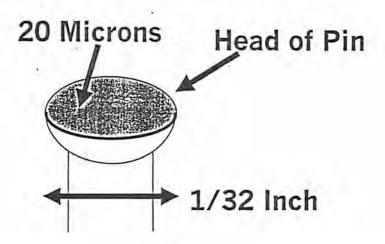
1 Micron = 1/25,000 inch

Human Hair = 50 - 75 Microns

Red Blood Cell = 7 Microns

- Crystalline Silica Causes Its Toxic Effect In The Alveoli Of The Lung
- Only Respirable Silica Particles Are Small Enough To Reach The Alveoli

How Big Is A Micron?



Hazardous Concentrations

MSHA Exposure Limit Based on Percent Crystalline Silica in Dust

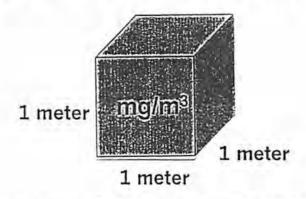
10 / [% Quartz +2]

Less Than 1% Limit Not Defined 1% 3.33 mg/m³ 100% 0.098 mg/m³

(Special Regulations for Cristobalite,

Units of Measurement

Milligrams of Dust per Cubic Meter of Air



1 milligram = 0.001 gram = 0.000035 oz

How Much is 0.098 mg/m³?

 $0.098 \text{ mg/m}^3 = 0.1 \text{ ounce per } 1,000,000 \text{ ft}^3$



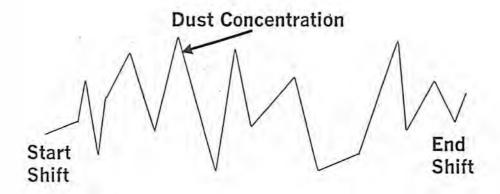
HOW LONG DOES IT TAKE ? Depends on Exposure Concentration

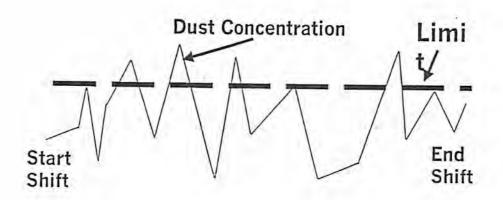
- □ Chronic Silicosis (Most Common)
 Low Silica Levels, 20 to 45 Yrs
- □ Accelerated Silicosis (Less Common)
 High Silica Levels, 5 to 10 Yrs
- □ Acute Silicosis (Least Common)

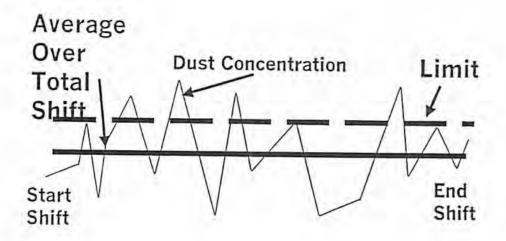
 Very High Silica Levels, Weeks to 4 Yrs

LISTED NUISANCE PARTICULATE

- Nuisance Particulate Means Not "Toxic" or Disease Causing "When Exposures Are Kept Under Reasonable Control;" Primary Effects Are Irritation and Overload
- Listed Nuisance Particulate Means the Particulate Is Listed In Appendix E of 1973 ACGIH TLV Booklet. Examples: Gypsum, Limestone, Marble, Portland Cement







MSHA Dust Regulations

56/57.5001	Exposure Limits
≘ 56/57.5002	Exposure Monitoring
₽ 56/57.5005	Control Of Exposures
≘ 56/57.18002	Examination Of Working Places
₽ 56/57.20011	Barricades & Warning Signs
₽ 58.610	Abrasive blasting
₽ 58.620	Drill Dust Control

Hierarchy of Controls

Priority	Type of Control
1st	Engineering Controls
2nd	Administrative Controls
3rd	Personal Protective Equip

DUST OVEREXPOSURE

High Risk Jobs For Silicosis

Driller Sandblaster

Crusher Operator Maintenance

QC Technician Bin Puller

Clean/Repair Screens Bagger

Clean Up

SILICA OVEREXPOSURE

In Order For Overexposure:

- 1. Silica (Quartz, Cristobalite, Tridymite)
- 2. Process That Creates Respirable Dust
- 3. Process That Places Dust In Suspension
- 4. Employee Exposed to Dusty Air

Usually Can't Control 1 & 2 . . .
So Focus On 3 & 4

PROBLEM: DUST IN SUSPENSION

■ Prevent Dust From Becoming Airborne

- + Wet Processes
- + Minimize Handling
- + Change Process
- + Vacuum Systems (Not Broom/Shovel)

■ Capture or Control Airborne Dust

- + General Ventilation
- + Local Exhaust Ventilation

PROBLEM: EMPLOYEE EXPOSURE

■ Keep People Out Of Dusty Air

- +Cabs and Booths (Remember AC)
- +Relocate Employee (CCTV)
- +Change Process

Respirators (Occasional Repair, Maintenance, or Investigation Jobs

- +NIOSH Approved Respirators
- +ANSI Z88.2 1969

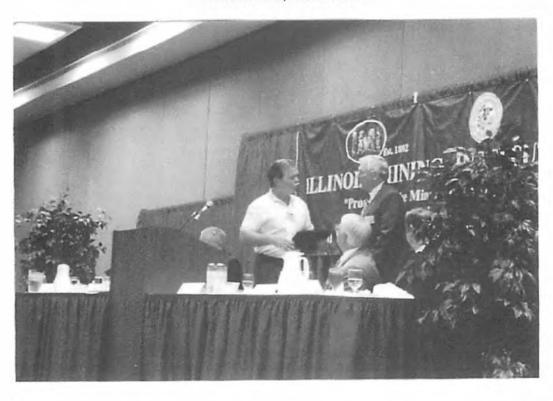
RESPIRATORY PROTECTION PROGRAM

As Per ANSI Z88.2-1962 . . .

- Written Standard Operating Procedures
- Respirators Matched To The Hazard
- **Employee Training**
- □ Cleaning and Disinfecting
- Storage: Clean, Convenient, Sanitary
- Respirator Inspection
- Workplace Surveillance
- Program Evaluation

ILLINOIS MINING INSTITUTE HONORARY MEMBER AWARD 2001

STEPHEN E. (GENE) SHARP ARCH COAL COMPANY WATERLOO, ILLINOIS



2001 ILLINOIS MINE RESCUE CONTEST

For the third year the Illinois Mine Rescue Association and the Illinois Mining Institute annual meeting was combined. The meet proved to be even better than the previous year.

Twelve teams from four states participated in the competition. The teams represented Illinois, Indiana, Kentucky and Alabama. Ten competed in the benchman contest.

The following companies were represented: Lonestar Energy, Consolidation Coal Company, Indiana Bureau of Mines, Monterey Coal Company, The American Coal Company, White County Coal, LLC, Webster County Coal, LLC, Drummond Co., Inc., Freeman United Coal Company, Peabody Coal Company, Illinois Department of Natural Resources, and Turris Coal Company.

MINE RESCUE COMPETITION FINAL RESULTS

IN-STATE

1ST place - Consolidation Coal Company 2nd Place - Monterey Coal Company 3rd Place - The American Coal Company

OUT OF STATE

1ST Place - Lonestar Energy, Inc. 2nd Place - Indiana Bureau of Mines

BENCHMAN COMPETITION FINAL RESULTS

1ST place – Lonestar Energy, Inc., Todd Watson 2nd Place – Drummond Co., Inc., Tim Stockman

ILLINOIS MINING INSTITUTE MINE RESCUE CONTEST













MINE RESCUE AWARDS





SAFETY AWARDS



















ILLINOIS MINING INSTITUTE SCHOLARSHIP AWARDS 2000-2001

SOUTHERN ILLINOIS UNIVERSITY DEPARTMENT OF MINING AND MINERAL RESOURCES ENGINEERING

MATT BLUMENSTOCK

MICHELE BUTCHER

ROBERT HOGAN

HERMAN SCHAUMBURG

RAY SCHMITT

UNIVERSITY OF MSSOURI-ROLLA

MICHAEL L. DROSZCZ

NICHOLAS G. GLANCO

WABASH VALLEY COLLEGE

RICHARD O. PICKERING

ROY T. SHAVEZ

JACKIE L. HORTON

RYAN L. PRATHER

SCHOLALRSHIP AWARDS LYLE CLINE SOUTHERN ILLINOIS UNIVERSITY



From the left: Michele Butcher, Herman Schaumburg, Ray Schmitt, Lyle Cline, Matt Blumenstock, Herman Schaumburg

SCHOLARSHIP AWARDS LARRY GRAYSON UNIVERSITY OF MISSOURI AT ROLLA

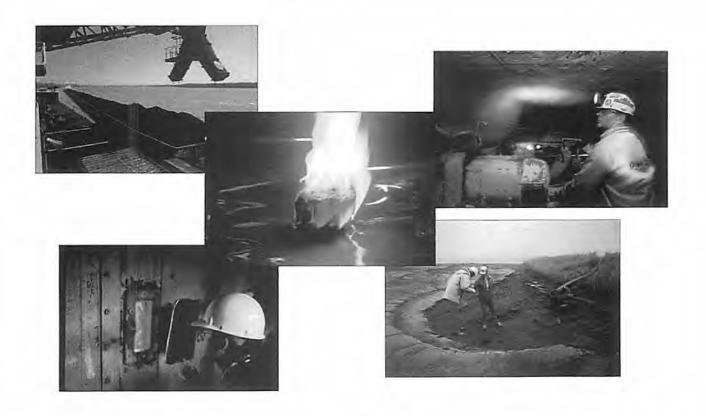


ILLINOIS MINING INSTITUTE Handing over the charge

PRESIDENT WILL BORDER HANDS OVER THE GAVEL TO JOSEPH ANGLETON



STATE OF ILLINOIS INCENTIVE PROGRAMS FOR COAL AND ENERGY DEVELOPMENT



ILLINOIS MINING INSTITUTE AUGUST 27-29, 2001

Michael P. Murphy, DCCA, Chief, Office of Coal Development Thomas Henderson, DCCA Business Development Ronald H. Carty, Illinois Clean Coal Institute Gary R. Philo, DCCA Office of Coal Development The Illinois Coal Revival Initiative – Michael Murphy, Chief, Office of Coal Development; Tom Henderson, Business Development

On June 22, 2001 Governor Ryan signed P.A. 92-0012, the Illinois Resource Development and Energy Security Act into law. This bridge to a new era of clean-coal utilization provides a \$3.5 billion package of tax and financing incentives and direct support to developers who build and sustain new Illinois coal-fired generating stations. The benefits will create new and sustained markets for our 250-year supply of Illinois coal, and at the same time, create well-paying jobs and economic activity in regions of the state that sorely need it. Illinois consumers will benefit, as we become more energy independent, and less reliant on the volatile prices of other fuels.

The incentive package is two-fold: to encourage construction of base load electric generating capacity and to create new Illinois coal mining jobs. The three main incentive components include:

- · Financial assistance for new, coal-fired electric generating capacity,
- "High Impact Business" designation for baseload electric generating plants and new mines, and
- \$3.0 billion in revenue bond financing for power plants, scrubbers, and alternative energy sources.

FINANCIAL ASSISTANCE PROGRAM

Public Act 92-0012 authorizes \$500 million in general obligation bonds for financial assistance in the form of direct grants to construct new, or expand existing coal-fired baseload power plants in Illinois. Grant proceeds may be used for capital facilities consisting of buildings, structures, durable equipment and land at the new generation facility.

To qualify, facilities must:

- Create 400 megawatts of new, base load electric generating capacity at one site,
- · Commence foundation construction on or after July 1, 2001,
- Use Illinois coal as the primary fuel source, and
- Support the creation of at least 150 new Illinois coal mining jobs.

The amount of a grant will be determined by the state occupation and use taxes to be paid on Illinois-mined coal used at the facility. Grants are contingent upon certification by Bureau of the Budget that the state portion of the projected tax receipts will equal or exceed 110 percent of the maximum annual debt service on the bonds over their 25-year life. The maximum amount payable to any one facility is \$100 million.

Businesses applying for financial assistance through the Department of Commerce and Community Affairs will be required, at minimum, to provide the following information:

The planned completion date of the new electric generating facility,

- The total annual state occupation and use taxes to be paid on Illinois-mined coal used at the new facility, and
- Documentation of the amount of capital investment in the new facility.

HIGH IMPACT BUSINESS PROGRAM TAX INCENTIVES

Public Act 92-0012 extends the state's High Impact Business designation to businesses intending to construct new, or expand existing, baseload electric generating capacity, electric transmission facilities, and coal production facilities in Illinois. The program offers tax credits and exemptions that can have a significant impact on startup costs.

To qualify as a High Impact Business, the applicant must do one of the following:

- Create 400 megawatts of new, baseload electric generating capacity at one site, utilize Illinois-mined coal as the primary fuel, support the creation of 150 new Illinois coal mining jobs, and commence foundation construction no sooner than July 1, 2001,
- Expand, reopen or open a new coal production facility at a designated location in Illinois no earlier than July 1, 2001, have that facility serve as the predominant source of coal for a new electric generation facility and create 150 new Illinois coal mining jobs,
- Construct new transmission facilities or upgrade existing transmission facilities at designated locations in Illinois no earlier than July 1, 2001, and transmit a majority of the electricity generated by a new electric generating facility, or
- Create 1000 megawatts of new, natural gas-fired baseload electric generating capacity at one site and commence foundation construction no earlier than July 1, 2001 and no later than December 31, 2004,

Applicants must certify that the investments necessary to establish the new or upgraded facilities would not be made without the tax credits and exemptions provided by the High Impact Business designation. Businesses applying for this designation also must meet certain other applicable provisions of the High Impact Business Program. Businesses located in designated enterprise zones are not eligible for the High Impact Business designation.

"High Impact Businesses" are eligible for some or all of the following tax credits and exemptions:

- · A sales tax exemption on building materials and equipment;
- A utility tax exemption (not applicable to natural gas-fired electric generating facilities, and
- An investment tax credit (not applicable to natural gas-fired electric generating facilities).

PROPERTY TAX ABATEMENT

Public Act 92-0012 creates new options for owners of new or expanded electric generating facilities, coal production facilities or transmission lines to seek abatement of

property taxes. These options allow local taxing districts to abate a portion of the property taxes on such new facilities for up to 10 years.

ILLINOIS DEVELOPMENT FINANCE AUTHORITY AUTHORIZATION

Public Act 92-0012 adds \$3 billion in revenue bond authorization for financing of coal and energy projects through the Illinois Development Finance Authority (IDFA):

- Up to \$1.7 billion to finance new electric generating facilities, including minemouth power plants,
- Up to \$500 million for alternative energy sources, including renewable energy resources or to help convert biomass to fuel,
- Up to \$500 million for scrubbers at existing generating plants, and
- Up to \$300 million for transmission facilities.

The IDFA bonds are payable only from revenues pledged by the private borrowers. There is no state moral obligation backing these bonds and no state tax exemption on interest on the bonds. Some projects may be eligible for federal tax exemption.

The Illinois Resource Development and Energy Security Act creates a broad-based program of tax and financing incentives and direct support to developers who build substantial new coal-fired electric generating stations. It extends significant incentives, as well, for the coal mines that will supply these plants and the transmission network that will carry the expanded load.

SUMMARY OF BUSINESS DEVELOPMENT

PROGRAMS

Participation Loan Program

DCCA works with banks and other conventional lenders to provide financial assistance to small businesses (less than 500 employees) that will employ Illinois workers. The state will participate in loans up to 25 percent of the total amount of a project, but not less than \$10,000 nor more than \$750,000. Generally, up to \$10,000 of loan assistance is provided for each job created or retained. DCCA can provide below-market subordinated debt to companies located in or expanding in an Illinois Enterprise Zone.

Illinois Capital Access Program

The Illinois Capital Access Program (CAP) is designed to encourage financial institutions to make loans to small and new businesses that do not qualify under conventional lending policies. CAP is a form of loan portfolio insurance which provides additional reserve coverage to the lender on loan defaults.

Business Development Public Infrastructure Program

The Business Development Public Infrastructure program provides low-interest and grant financing to units of local government for public improvements on behalf of businesses undertaking expansion or relocation projects that meet the program criteria and demonstrate great potential for creating and retaining jobs.

Enterprise Zone Program

Illinois Enterprise Zones offer a number of state and local tax incentives to businesses that make investments to create or retain jobs in any of the 93 certified zones located in communities throughout the state. (See attached map.) Businesses choosing to locate or expand in one of these designated areas may be eligible for the following incentives: an exemption on the retailers' occupation tax paid on building materials, an investment tax credit of .5 percent of qualified property, and a \$500 jobs tax credit for each job created in the zone for which a certified dislocated worker or economically disadvantaged individual is hired. Additional exemptions, such as an exemption on the state utility tax for electricity, natural gas and the Illinois Commerce Commission's administrative charge and telecommunication excise tax, are available for companies that make the minimum statutory investment that either creates or retains the necessary number of jobs (i.e., create 200 jobs and invest \$5 million or retain 1,000 and invest \$20 million). The utility tax exemption requires a business to make application to and be certified by the Department. In addition to the state incentives offered by the program, each zone offers distinctive local incentives to enhance business development projects. Such local incentives may include property tax abatements, waivers of business licensing and permit fees, streamlined building code and zoning requirements, and special local financing programs.

SUMMARY OF BUSINESS DEVELOPMENT

PROGRAMS

High Impact Business Program

The High Impact Business (HIB) provides a package of state tax incentives to business that will create or retain a substantial number of jobs and make a significant investment at a designated location in Illinois. The tax incentives include an investment tax credit, a state sales tax exemption on building materials, and an exemption from state tax on utilities. A business must create at least 500 jobs and invest \$12 million or retain 1500 jobs and invest \$30 million. Businesses located within Enterprise Zones are not eligible for this program.

Tax Increment Financing Program

The Tax Increment Financing Program is a municipal financing technique that may be used to renovate declining areas or redevelop blighted areas while improving the tax base of such areas. The program allows municipality to acquire and prepare property for redevelopment and make needed public (and some private) improvements.

Community Development Assistance Program (CDAP) Economic Development Component

This federally funded program assists smaller Illinois local governments in financing economic development needs. Grants are made to units of local governments and may be loaned to businesses for projects that will create or retain jobs in the community. Grant funds may also be used by the local government for improvements to public infrastructure that directly support economic development. The program is limited to communities with populations under 50,000 that are not located within an entitlement city or one of the eight large urban counties that receive funds directly from the federal government. Funds are targeted toward projects that primarily benefit low to moderate income people.

Illinois EDGE (Economic Development for a Growing Economy)

EDGE provides tax credits to qualifying businesses that create or retain jobs and make capital investments in Illinois. Credits are calculated from the personal income tax collected on salaries paid to employees in the new or retained jobs, which may be taken as a non-refundable tax credit against corporate income taxes over a period not to exceed 10 taxable years. The personal income tax rate in Illinois is three percent. Generally, the applicant must commit to the creation of at least 25 jobs and an investment of \$5 million. The applicant must document that if not for the credit, the project would not proceed in Illinois.

SUMMARY OF BUSINESS DEVELOPMENT

PROGRAMS

Large Business Development Program

The Illinois Large Business Development Program (LBDP) provides incentive financing (grants or loans) to encourage large out-of-state companies to locate in Illinois, and also encourages existing Illinois companies to undertake major job expansion or retention projects. Funds available through the program may be used by large businesses (500 or more employees) for typical business activities, including financing purchase of land and buildings, construction or renovation of fixed assets, site preparation, and purchase of machinery and equipment. LBDP funds are targeted to major economic development opportunities that will result in substantial private investment and the creation and/or retention of jobs (at least 300 jobs). Generally, assistance is limited to up to \$5,000 per job created or retained. Grants are limited to \$500,000 and loans to \$2,000,000, unless waived by the Director.

Linked Development Grants

Through the Linked Development Program, DCCA can make grants to not-for-profit corporations or local governments to assist with projects that will create jobs in economically depressed areas. Depressed areas can demonstrate their distress by reference to high unemployment, high poverty rate, low per capita income, surplus labor, or a designated redevelopment area, such as a state enterprise zone or federal empowerment zone. This program is a flexible source of funds to help develop and redevelop depressed areas of the state. Eligible projects include economic development (i.e., assistance to a specific, for-profit entity, the result of which is new job creation), brownfield redevelopment and public facilities improvements.

Technology Demonstration and Coal Infrastructure Programs – Gary Philo, Office of Coal Development; **Coal Research and Development Programs** – Ron H. Carty, Illinois Clean Coal Institute

DCCA's Office of Coal Development provides technical and financial support to the Illinois coal industry. The Office of Coal Development (OCD) awards funding to improve and expand the coal mining and transportation systems within Illinois, for basic research and development on coal and its utilization, as well as commercial-scale demonstration of promising coal utilization technologies. Investment within the Illinois energy sector is stimulated through financial incentives provided by OCD programs. The following chart shows the investment by the state of Illinois in the coal industry since the beginning of the Technology Demonstration program in 1978. The Research and Development programs were started in 1982. Having begun in 1996, the Infrastructure program is the most recently funded program. A total of \$202.3 million dollars has been issued to coal producers, support industries and clean-coal research facilities in Illinois.

DCCA PROGRAM	TO DATE	FY2002
• R&D (ICCI)	\$49.5 M	\$4.2 M
Demonstration	\$104.8 M	\$29.6 M
Infrastructure	\$48.0 M	\$15.0 M
All Programs	\$202.3 M	\$48.8 M

INFRASTRUCTURE

In 1996, DCCA launched the Illinois Coal Infrastructure Program aimed at making Illinois coal more competitive in domestic and offshore markets. This program, administered by OCD, encourages coal producers and support industries to reinvest in

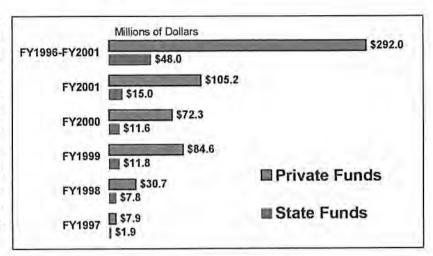
Illinois. To date \$48 million in state funds have been issued for coal production and transportation infrastructure projects as shown on the chart below. The Illinois Coal Infrastructure Program exemplifies successful cooperation between public and private sectors to overcome adversity. Each project, in addition to bringing immediate benefits to the communities and businesses involved in coal mining, lays the groundwork for long-term recovery and growth of the Illinois coal industry.



An infrastructure grant aids Knight Hawk Coal, LLC with the development of Creek Paum Mine.

The Illinois Coal Infrastructure Program provides cost-sharing incentives for businesses to improve and expand the coal mining and transportation systems within Illinois. Grant awards fund up to 20 percent of the project costs. Proposals are received from producers, shippers, electric utilities, coal terminals, planning commissions, etc. Projects encompass mine, preparation plant, rail, barge, and road installations and upgrades. One hundred-forty-four projects have been funded through FY2001.

Due to the support of the Illinois Coal Infrastructure Program the coal industry has: avoided mine closures. produced better quality coals, lowered production improved mine costs, productivity, benefited the environment. enhanced mining safety, and gained new markets for Illinois coal.



The FY2002 Infrastructure Program has a budget of \$17 million. Request for proposals were mailed June 12, 2001 and due July 31, 2001. To date 61 proposals have been received. Twenty-three companies have requested a total of \$50 million in grant funds to support \$219 million in total project costs. Infrastructure proposals are currently being evaluated, with selection to be announced later this year.

TECHNOLOGY DEMONSTRATION

The Illinois Coal Demonstration Program shares in the financial risk of demonstrating advanced clean-coal technologies that meet or exceed stringent state and federal environmental regulations, thus ensuring future markets for Illinois high-sulfur coal. Each project requires a special appropriation of funds from legislation. Therefore, there is a long lead time to get funds in place and issued. Grant funds may be available for up to 20 percent of the total project cost.

Through the Illinois Technology Demonstration Program, the state of Illinois has invested \$105 million to bring advanced coal utilization technologies to commercial readiness. In addition to leveraging significant public and private investment dollars, each project returns near- and long-term benefits to the state of Illinois that include economic growth, cleaner air and energy conservation.

Twenty-four projects have been completed prior to date. Noteable projects include: SIUC / Steam Plant's circulating fluidized-bed (CFB) Repowering with 3MW congeneration project Illinois Power's gas reburning-sorbent injection project at Hennepin, Illinois, and Archer Daniels Midland's 150 MW circulating bed / cogeneration demonstration. Another noteworthy project is Springfield's City Water, Light and

Power's (CWLP) installation of a Lurgi Wet Flue Gas Desulfurization system that produces commercial grade gypsum. All of these projects reduce SO₂ and particulate emissions while burning Illinois coal.



Wet scrubbers on CWLP's Dallman Power Station trap sulfur dioxide in the flue and chemically change it to environmentally-friendly gypsum.

These early projects paved the way for application of clean-coal technology on a broader scale. Two projects receiving DCCA grant awards for FY2002 are the 91 MW Low Emission Boiler System (LEBS) in Elkhart and the 120 MW Southern Illinois Power Cooperative Marion Station Fluidized Bed Combustion (FBC) Repowering. Not only are these efforts bringing a new generation of clean-coal techniques to the commercial marketplace, but each project also provides near-term benefits to the state and local communities through increased employment, personal income and tax revenues.

RESEARCH AND DEVELOPMENT

The Department of Commerce and Community Affairs oversees the largest state-sponsored coal research and development program in the United States. Laboratory-scale projects that are chosen through a competitive *Request for Proposals* process initiate and advance technologies. Development-scale projects selected for funding must show promise for advancing clean-coal technologies from research through proof-of-concept stage and onto the near-commercial demonstration stage. Development processes include technology maturation, technology transfer and related studies. This program is administered by OCD and is under the technical oversight of the Illinois Clean Coal Institute (ICCI). In FY2001, OCD awarded \$2.4 million in state funds to conduct 17 clean-coal technology laboratory and field research / development projects. The program's objectives continue to gain the interest of Illinois coal and electric utility companies.

Currently there are four areas of research and development: mining methods, coal preparation, flue gas cleanup, and coal combustion by-products. Research on mining methods focuses on cost-cutting strategies aimed at reducing mine-mouth cost of Illinois coal by 20 percent. Studies are being done in transportation, waste disposal, emissions control measures, inventory controls, and improving environmental costs. Coal preparation research and development focuses on increased profitability and improved

overall plant product yield and quality with new coal-sizing technology and improving cleaning efficiencies of spirals, floatation cells, and the Falcon Separator. Flue gas cleanup targets reducing sulfur, nitrous oxides, and mercury emissions. Much work is being done to improve the utilization of combustion by-products. Fly ash is being tested in ceramic tiles and building panels. High-carbon fly ash is used in cement and precast concrete piles. FGD scrubber sludge is tested in structural materials.



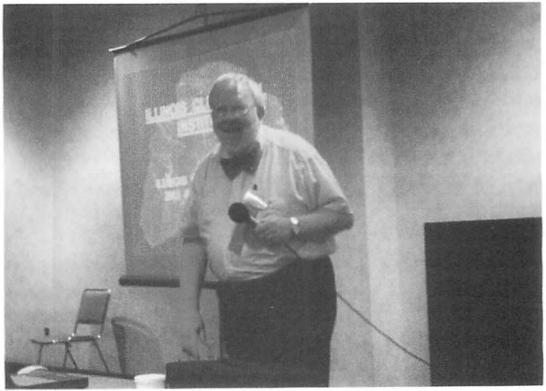
Fine aggregate in concrete is being replaced by bottom ash in a demonstration project at the new Medical Office Building in Marion, Illinois.

The Coal Research Program issues grants to entities engaged in clean-coal research activities focusing on the needs of coal users and producers in meeting the standards of the Clean Air Act Amendments of 1990. The coal development programs pass from research stage to proof-of-concept, to pilot scale and onto demonstration stage. Pilot scale development and demonstration program specifications may overlap, but are usually distinguished by cost. Research and development grants are typically between \$60,000 and \$400,000 and are issued by the Illinois Clean Coal Institute through Southern Illinois University-Carbondale.

In Conclusion

The state of Illinois under the leadership of Governor George Ryan is committed to direct support of the men and women in the Illinois coal industry. Programs include tax and financing incentives, infrastructure grants, clean-coal technology research and development, and demonstration of commercial scale technologies that promote environmentally friendly energy while insuring adequate and affordable electricity generation. Illinois will reap the direct and indirect economic benefits from secure energy sources and increased employment in the mining, construction, and energy generation and transmission industries for years to come.





PROFESSIONALS AT WORK

THE CLEAN COAL REVIEW BOARD NEW FUNDS FOR NEW TECHNOLOGIES

JOHN S. MEAD SOUTHERN ILLINOIS UNIVERSITY-CARBONDALE

PRESENTED

BY

THOMAS WILTOWSKI

THE CLEAN COAL REVIEW BOARD NEW FUNDS FOR NEW TECHNOLOGIES

BY

JOHN S. MEAD

SOUTHERN ILLINOIS UNIVERSITY CARBONDALE

PROGRAM OVERVIEW

- Identifies and supports promising Illinois clean coal projects
- · Projects funded from a \$25 million corporate gift
- · Program guided by a government/industry/labor board
- Program administered by a university

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ORIGIN OF THE PROGRAM

- Concept from legislative debate on changes in utility restructuring
- SB 24 (1999) led to sale of significant generating capacity and creation of funding
- Community Clean Energy Trust also established

ESTABLISHMENT OF THE PROGRAM

- SB 24 passed- May, 1999
- Signed into law by Governor Ryan July, 1999
- Sale of generating stations Dec. 1999
- Transfer of gift to SIUC Dec, 1999
- Appointment of the board Jan, 2000

PROGRAM MISSION STATEMENT

 The program will contribute to the new growth of the Illinois coal industry through the application of advanced technologies and practices in new or existing facilities in the state of Illinois.

PROGRAM OBJECTIVES

- Identify the very best cutting edge coal utilization technologies
- Secure the commitment of private, government and institutional funds (including the Community Clean Energy Trust) to Illinois clean coal projects
- Enhance the effectiveness of other Illinois coal funding initiatives, but not duplicate
- In funding projects, maximize the contributions of and the benefits to ultimate commercial users
- · Engage regulatory agencies in the project development process

PROGRAM ACTIONS

- Establish board procedures
- Issued Request for Proposals
- · Proposal Reviews
- Selection of first projects for funding
- · Development of funding agreements

BOARD PROCEDURES

- Board will be active in program development
- Cooperation with state programs will be maximized
- Meetings will be quarterly, including future fact finding sessions

PROJECT SOLICITATION

- Request for Proposals issued- June, 2000
- Not limited to particular technologies of applications, but consistent with board mission
- Board funding limited to 30 percent of project costs

SOLICITATION RESULTS

- 16 proposals received
- Over \$400 million in proposed investment in Illinois coal
- Over \$100 million requested from the program
- Wide range of clean coal concepts represented

PROJECT SELECTION

- · Review process identified most promising
- Funding levels based on project need and program objectives

PROJECTS SELECTED - NEW POWER SYSTEMS

- Ashworth Combustor Demonstration ClearStack Combustion Corp.
- Marion CFBC Repowering Southern Illinois Power Cooperative

PROJECTS SELECTED - COAL CLEANING

- Central Processing Arclar Company, L.L.C.
- Advanced Fine Coal Cleaning White County Coal, L.L.C.

PROJECTS SELECTED - MINE MOUTH POWER GENERATION

- Close Coupled Gasification Microgeneration Power Plant Coaltech Energy
- Prairie Energy (LEBS) Corn Belt Energy
- Coal Industrial Park Demonstration SIUC

REVIEW OF THE BOARD'S PROJECTS

- Program funding \$9.25 Million
- Funded projects total over \$200 million in Illinois clean coal technology investment
- Projects include significant technology applications of concepts supported by Illinois R&D

LESSONS FROM THE YEAR

- Activities in 2000 indicate an awakening interest in Illinois clean coal technology
- Cooperation with state programs, industry, labor and universities can work

PROGRAM DIRECTION

- New funding rounds are likely
- Strong emphasis on mine mouth power generation and other power systems applications will be explored

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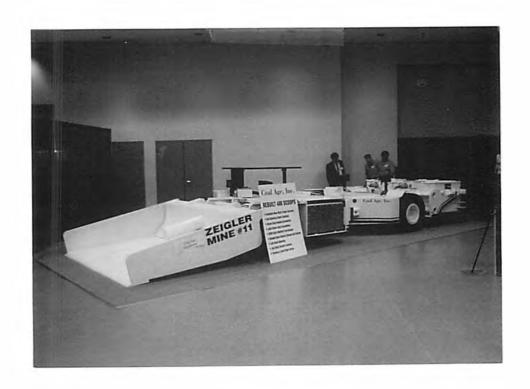
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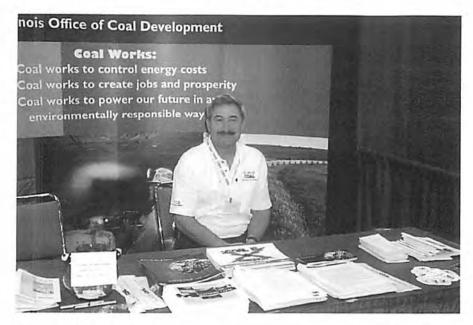








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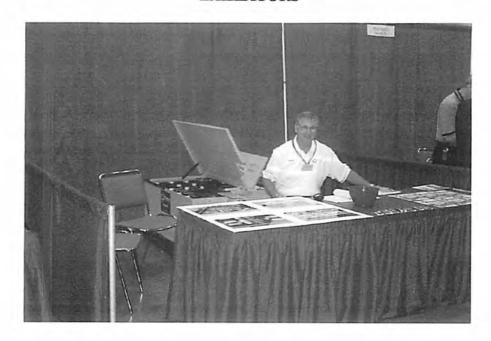


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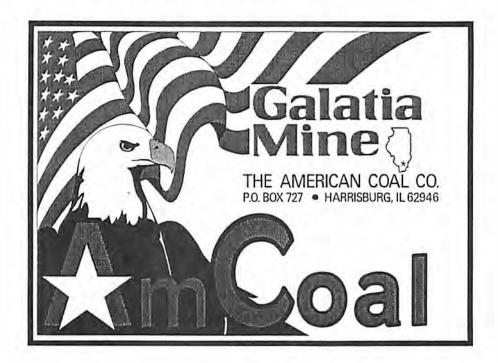
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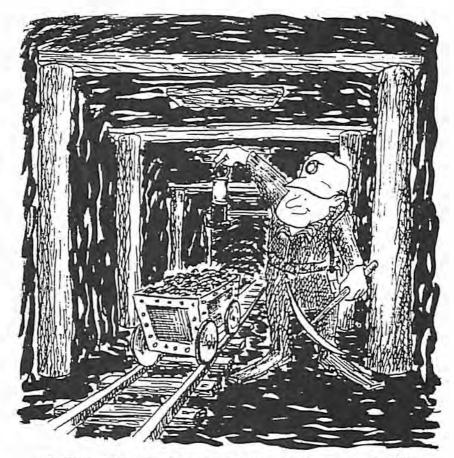
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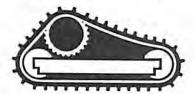
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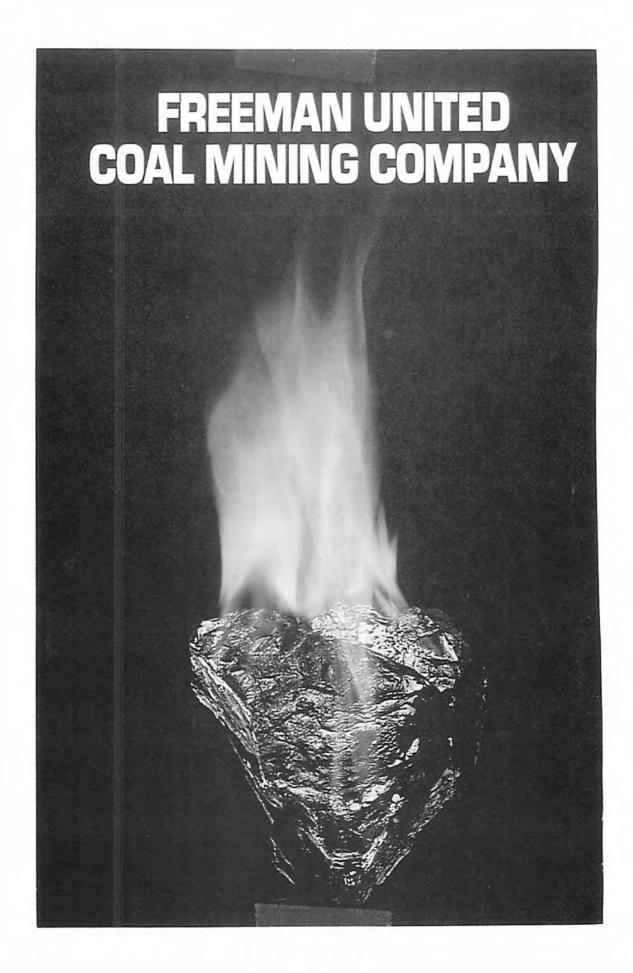
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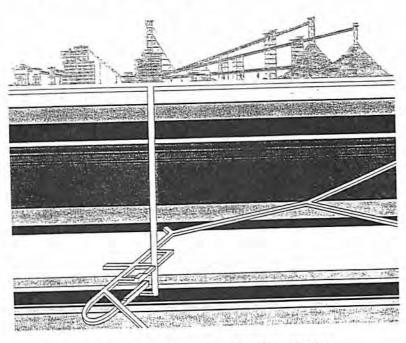
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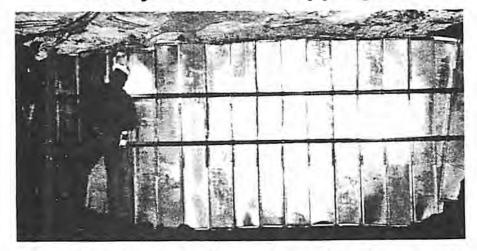


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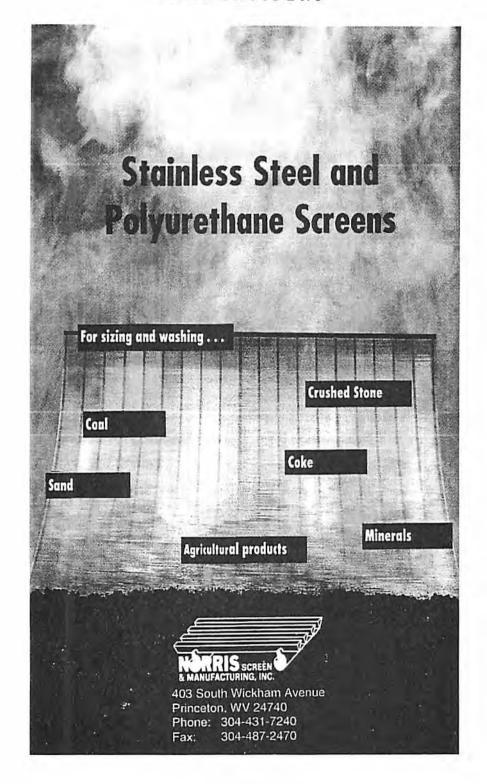
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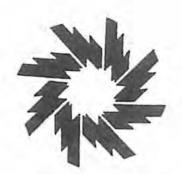
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