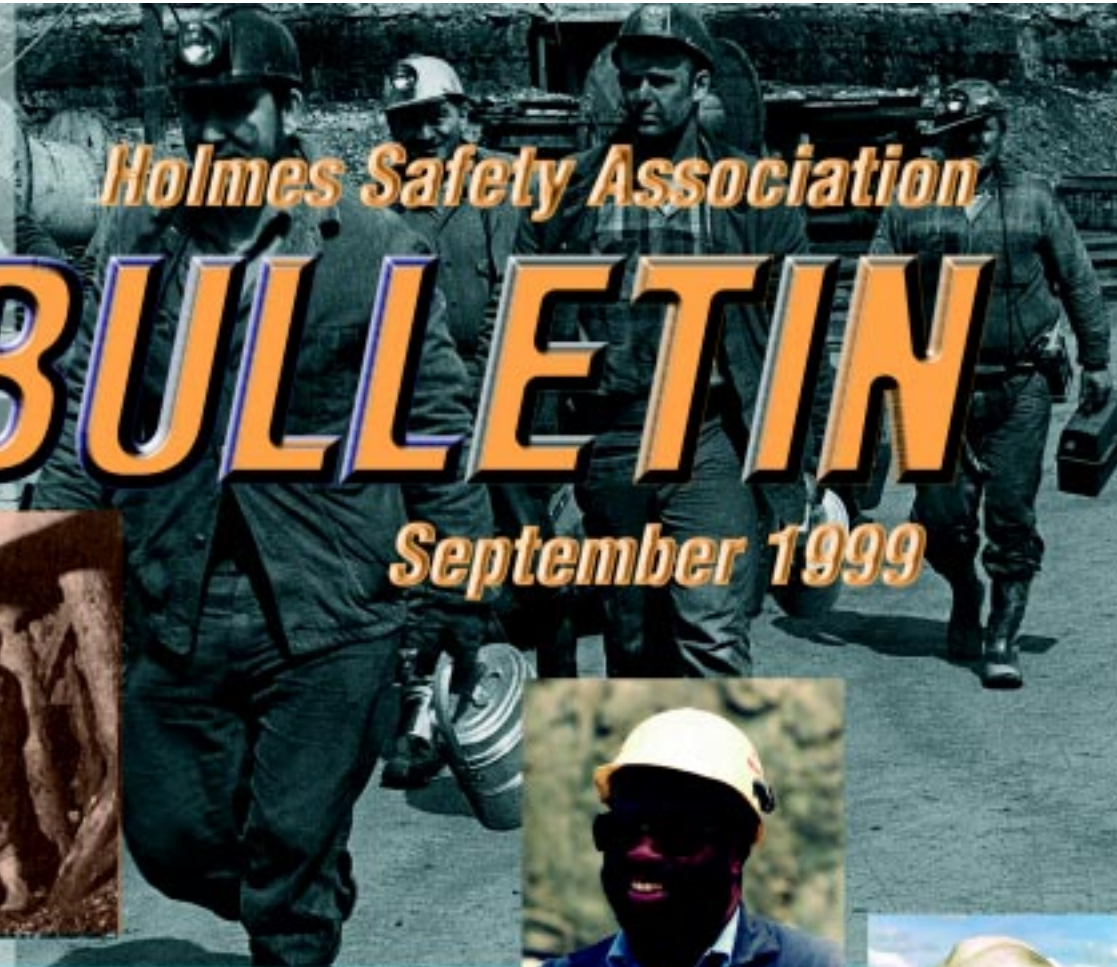


*Holmes Safety Association*

# **BULLETIN**

*September 1999*



SEPTEMBER  
Labor Day





*HSA Bulletin September 1999*

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The **Holmes Safety Association Bulletin** contains safety articles on a variety of subjects: fatal accident abstracts, studies, posters, and other health-and safety-related topics. This information is provided free of charge and is designed to assist in presentations to groups of mine and plant workers during on-the-job safety meetings. For more information visit the *MSHA Home Page* at [www.msha.gov](http://www.msha.gov).

**PLEASE NOTE:** The views and conclusions expressed in Bulletin articles are those of the authors and should not be interpreted as representing official policy or, in the case of a product, represent endorsement by the Mine Safety and Health Administration.

**COVER:** Created from Bulletin photo files and computer generated design, by the Bulletin staff artist. If you have a potential cover photo, please send an 8" x 10" print to Donald Starr, Holmes Safety Association Bulletin, National Mine Health and Safety Academy, 1301 Airport Road, Beaver, WV 25813-9426.

KEEP US IN CIRCULATION--PASS US ALONG

# Analysis of Lost Time Underground Powered Haulage Accidents

January 1990 through March 1998



Underground powered haulage lost time accidents that occurred in coal and metal/nonmetal mining during the period January 1990 through March 1998 are highlighted in the publication, *Analysis of Lost Time Underground Powered Haulage Accidents, January 1990 through March 1998, OT-43*.

The accidents highlighted in this publication involve shuttle cars, scoops, trackmounted equipment, mobile haulage equipment, and conveyor belts. It also identifies the major factors that led to powered haulage accidents, and recommends accident prevention methods to reduce the frequency of these accidents. Fatal and nonfatal accidents are covered. Many charts are included which are broken down into coal and metal/nonmetal statistics.

Information for this publica-

tion was gathered from Mine Safety and Health Administration (MSHA) Accident Investigation Reports and accident and injury data submitted by mine operators. A total of 6,899 accidents were reviewed and many of these resulted in traumatic injuries to the victims, such as severed limbs and internal injuries. Sixty of these accidents resulted in the loss of human life.

The publication highlights the following causes that contributed to these powered haulage accidents:

- Operator often placing himself/herself in a hazardous location.
- Poor lighting and poor visibility.
- Operator exiting the compartment and failing to set the park brake.

- Inadequate maintenance of the park brake.

- Inadequate or improper size and configuration of the equipment operator's compartment.

- Lack of equipment examination and preventive maintenance program.

- Failure to look for hazards prior to moving equipment and to sound warning prior to going through ventilation curtains.

- Lack of proper miner training in the operation of equipment and in the procedures to follow when working on or near moving equipment.

- Failure of employees to wear eye protection.

- Inadequate communication around moving equipment.

- Need for better house-keeping to deal with bottom irregularities and debris on road ways.

You may obtain this publication from the:

**National Mine Health and Safety Academy**

**Attention:**

**Mary Lord**

**Department of Instructional Materials**

**1301 Airport Road**

**Beaver, West Virginia 25813-9426**

**Telephone: (304) 256-3257**

**Fax: (304) 256-3368**

**E-Mail: [mlord@msha.gov](mailto:mlord@msha.gov)**

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## ***Stress On The Job -- Part I***

*by Charlotte Richardson (Bulletin Staff Writer)*

### ***Defining and Recognizing Stress***

Job stress has become a common and costly problem in the American workplace, and working in the mines is no exception. In spite of expanded research, causes, effects, and prevention of job stress are not always clear. However, few workers are untouched as proven by the following studies:

- One-fourth of employees view their jobs as the Number One stressor in their lives. Forty percent report their job is “very or extremely stressful.” **Northwestern National Life**
- Three-fourths of employees believe the worker has more on-the-job stress than a generation ago. **Princeton Survey Research Associates**
- Problems at work are more strongly associated with health complaints than are any other life stressor-- more so than even financial problems or family problems. **St. Paul Fire and Marine Insurance Co.**
- Twenty-six percent of workers report they are “often or very often burned out or stressed by their work.” **Families and Work Institute**
- Twenty-nine percent of workers report they feel “quite a bit or extremely stressed at work.” **Yale University**

Job stress is defined as “the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker.” These stresses can

result in poor health and even injury to workers.

Challenges in our work are important for our health and productivity. Challenge energizes us; it motivates us to learn new skills and master our jobs.

When a challenge is met, we feel relaxed and satisfied. As *job challenges* turn in to *job demands* that cannot be met, we find ourselves exhausted instead of relaxed, and feelings of stress replace a sense of

satisfaction. The stage is now set for illness, injury, and job failure.

### **The Stories of Two Workers**

For weeks, Marty Miner, a loader operator for a large mine, had been plagued by aching muscles, loss of appetite, restless sleep, and a complete sense of fatigue. He had become short-tempered and irritable; so much so that his wife told him to “get a checkup or get out.” One morning at the local diner, he ran into Benny Buyer, a friend he had worked with at the construction firm several months ago. Within minutes, they were comparing their recent experiences.

*“You got out just in time,” Marty told Benny. “Since the last big layoff, nobody feels safe. It used to be that as long as you did your work, you had a job; but not anymore. I’m working twelve-hour shifts usually six days a week, and they holler at us for more and more production. But they won’t call anyone back. Never mind suggesting better ways to do some of the work; we’re just peons -- who listens to us?!?!? Guys have called in sick just to get a break. Just last week one of the truck drivers dozed off and drove into a stacker. He wasn’t hurt real bad, but he’s still off. And we’re all expected to take up the slack -- on top of all the other work we have to do! I swear I*

*can hear those trucks and loaders in my sleep! We’re always biting each others’ heads off; nobody gets along with anybody anymore. The company couldn’t find the time to have a picnic this year, and nobody would’ve come anyway. And get this, Benny -- they just hired ANOTHER new manager from outside! What’s the use to try to get ahead?”*

*Benny responded, “That really sounds tough, Marty. Let me tell you what’s going on where I work. It’s a dinky little office, but it’s just as bad. The phone never stops ringing; if it isn’t a customer calling in to complain, it’s a supplier with excuses, or an engineer screaming for materials. My boss won’t let me promise anything to a customer without her okay, and she won’t let me tell off the suppliers. But SHE won’t talk to them and demand they deliver our orders; and guess who gets to tell the construction guys where the materials are that they needed last week? Heaven forbid I’m in the bathroom when the phone rings. She just dumped more of HER paperwork on me to do; I’m trying to learn the new computer software, so now I’m way behind in everything. The air conditioning hasn’t worked right for three weeks now. That could be why I have so many headaches. I don’t think they’ve ever had so much as an employee’s luncheon,*

*forget about a production as big as a picnic! My mother’s health has been bad, and I can’t take time off to help look after her. My blood pressure is up and the doc says: ‘Relax, take things a little slower.’ That’s easy for him to say.”*

Although Marty and Benny work in different surroundings and have different duties, the conditions leading to their symptoms of job stress are very similar.

Some early warning signs of job stress are:

- ✱ Headaches
- ✱ Low morale
- ✱ Short temper
- ✱ Upset stomach
- ✱ Job dissatisfaction
- ✱ Sleep disturbances
- ✱ Difficulty in concentrating

### **Some Job Stressors**

**Design of Tasks.** Heavy work load; long hours; infrequent rest breaks.

*Example:* Marty works to the point of exhaustion in trying to reach what may be unrealistic goals in production. Benny is tied to the phone and computer. Neither job allows room for flexibility, self-initiative, or rest.

**Management Styles.** Lack of participation by workers in decision making; lack of family-friendly policies.

*(Continued on next page)*

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*Example:* Marty's superiors ignore employee suggestions. Benny has to get approval for his every move, and his boss is insensitive to his family needs.

**Interpersonal Relationships.** Poor social environment and lack of support or help from coworkers and supervisors.

*Example:* Marty and his coworkers are at each other's throats. Benny's boss abandons him to unhappy customers, unsatisfactory suppliers, and disgruntled coworkers.

**Work Roles.** Conflicting or uncertain job expectations, too much responsibility, wearing too many hats.

*Example:* Marty is forced to fill in for missing workers. Benny has been given new work with no training. Both are caught in difficult situations in trying to satisfy customers' needs and their companies' expectations.

**Career Concerns.** Job insecurity; lack of opportunity for growth, advancement, or promotion; changes for which workers are unprepared.

*Example:* Marty's company is not promoting from within. The only position Benny could strive for would be his boss's.

**Environmental Conditions.** Unpleasant or dangerous physical conditions such as crowding, noise, air pollution, or ergonomic problems.

*Example:* Marty is exposed to constant noise and probably dust at work. The air conditioner isn't working in Benny's small office.

The National Institute of Occupational Safety and Health (NIOSH) favors the view that working conditions play a primary role in causing job stress. According to NIOSH, exposure to stressful working conditions (called job stressors) has a direct influence on worker safety and health. However, the role of individual factors cannot be ignored.

Individual and other situational factors can intervene to strengthen or weaken these job stressors. Benny's need to care for his sick mother and Marty's wife threatening divorce are common examples of variables that tend to intensify the effects of stressful working conditions.

Factors that could help reduce the effects of job stressors include the following:

- Balance between work and family or personal life
- A support network of friends and coworkers
- A relaxed and positive outlook

**Part II** of this article on Job Stress will cover health effects, and **Part III** will explore the ways to reduce stress on the job. ♦



**Need more information about job stress?**

NIOSH  
4676 Columbia Parkway  
Cincinnati, OH 45226-1998  
1-800-35-NIOSH  
<http://www.cdc.gov/niosh>

The Encyclopedia of Occupational Health and Safety, 4th Edition

1995 Workers' Compensation Year Book

American Psychologist

Bureau of Labor Statistics (<http://stats.bls.gov>)

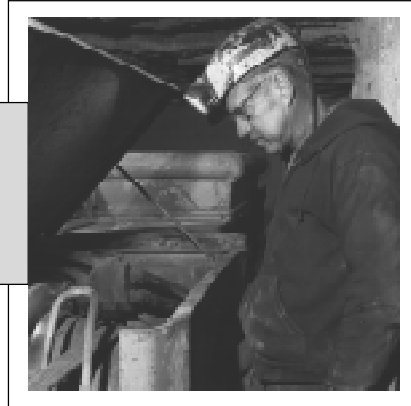
Families and Work Institute  
Journal of Applied Psychology  
Journal of Occupational and Environmental Medicine



# Do You Work Around Electricity?

By Steve Hoyle (Bulletin Staff Writer)

Chances are you work with electricity or use electrically-powered tools and equipment each day. Test your electrical safety awareness by trying the following quiz. If you answer “yes” to these questions, then you’re paying attention to electrical safety.



## When working around electricity:

- I treat electricity with respect all the time.
- I follow safety rules and procedures all the time because taking short cuts can injure or kill me or other miners.
- I make sure that all electrical equipment frames and enclosures are effectively grounded.
- I assume that all electrically-powered devices are “hot.”
- I always disengage the equipment and use lockout and tagout procedures before starting to troubleshoot or make repairs.
- I block equipment against possible movement.
- I use the proper tools and correct personal protective equipment for the job.
- I report unsafe conditions - immediately.
- I remove defective equipment from service - immediately.
- I know that only qualified electricians/helpers should perform electrical work.

## When working around power lines:

- I assume that all power lines are “hot.”
- I keep mobile equipment at least ten feet away from any hot line.
- I never touch equipment that’s operating near power lines.
- I understand that contact kills - that’s why I don’t allow equipment to touch power lines and I watch what I’m doing when carrying pipe, pieces of metal, or wood near overhead lines.

## If I’m working near an electrical installation:

- I make sure to protect electrical conductors, enclosures, and switchgear from mechanical damage.
- I stay out of electrical enclosures and substations.

(Continued on next page)

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## While working around fuses and breakers:

- If fuses blow or breakers open constantly, I check for overheating or melting wire and for damaged wire and equipment.
- I make sure that circuit protection is adequate for the equipment in use.
- I don't change instantaneous settings on breakers.
- I never "wire out" or "bridge out" fuses.

## When I work around trailing cables:

- I maintain cables in good condition.
- I use proper equipment to handle trailing cables and I watch myself around cable reels.
- I don't run over trailing cables with mobile equipment.

## If I work around batteries:

- I wear appropriate personal protective equipment.
- I make sure the battery charging area's well-ventilated
- I make sure that batteries are kept clean and chargers well-maintained to reduce the possibility of a fire or explosion.

## Mining Our History

*An Overview of Disaster Anniversaries  
by Melody Bragg (Bulletin Staff Writer)*

### 110 Years Ago *Inundation*

White Ash Mine  
Golden, CO  
September 9, 1889

Shortly after the men descended the shaft for the afternoon shift, water from the old Loveland Mine shaft broke into the workings of White Ash, filling it with debris and water. Ten men were killed in the disaster and the mine was permanently sealed.

### 106 Years Ago *Inundation*

Mansfield Mine  
Crystal Falls, MI  
September 28, 1893

The workings of this mine were raised so high in following a rich vein of ore under the bed of a river that the river broke through, filling the entire mine in less than 5 minutes. Twenty-eight miners were trapped and drowned. The cause of the disaster was considered to be neglect in taking necessary precautions.

### 88 Years Ago *Hoisting*

Butte Superior Mine  
Butte, MT  
September 3, 1911

Six men were killed in this mine when they were dragged from the upper deck of the cage they were riding. One of the men fell to the lower deck of the cage and five others were found in the shaft sump.

### 85 Years Ago *Roof Fall*

Number One Mine  
Adamson, OK  
September 4, 1914

A cave-in at this mine took the lives of 13 men who fell victim to either falls or rock or suffocation by afterdamp. Rescuers were unable to reclaim the bodies and the mine was permanently sealed.

### 75 Years Ago *Explosion*

Rains Mine  
Rains, UT  
September 21, 1924

Gas accumulated in this mine while the fan was shut down for repairs and was ignited by an arc from a machine. Five men were killed instantly.

*(See History on page 16)*



## Records Show Number of Suspect Coal Dust Samples Down

A decline this year in the number of air-quality tests from the Nation's mines that show suspiciously low coal dust readings suggests that tougher federal action to bring more accurate results may be taking effect, officials said.

"We hope this is one sign that efforts to reduce levels of dust are taking hold," said J. Davitt McAteer, Assistant Secretary of Labor for Mine Safety and Health. But he cautioned that it was too early to declare a turnaround in the widespread cheating among mine operators on coal dust sampling that was reported last year.

Coal dust tests have been required since the early 1970s, and their purpose is to prevent blacklung disease.

Last year, the Kentucky *Louisville Courier-Journal* reported that since testing began in 1972, many of the samples have registered so little dust that experts say they must have been falsified. As a result miners are breathing too much dust, and hundreds each year are still dying of black lung.

"You have to take the view that we've had a significant problem that has existed for several years in terms of dust levels and that it's going to take us some time and a lot of different efforts to fix that," McAteer said.

Through the first five months of 1999, the number of tests finding very little coal dust is down. Federal inspectors are targeting more underground coal mines for increased monitoring of airborne dust and of their efforts to control it.

Joseph Main, Safety and Health Administrator for the United Mine Workers of America, said he finds the decrease in the number of suspiciously low samples encouraging.

"That is what we would expect," Main said. "These increased inspections may be making mine operators sample a lot better and more legitimately." But Bruce Watzman, Vice President for safety and health of the National Mining Association, said he didn't know how to explain the decline.

"Whether one believes (the low dust samples) were the result of tampering or not, ... some could have been created by unintentional means," he said.

The mine operators have been working to improve technology "to remove the human element from the dust sampling process," Watzman said. "I'm encouraged by the fact that we're beginning to put in place changes in the pro-

gram that will restore confidence, integrity, and reliability" to coal dust sampling.

In 1998, 14 percent of 31, 175 coal dust samples measured at or below 0.1 milligram per cubic meter of air. That is a twentieth of the allowable amount and the equivalent to the amount of dust that can be found on a city street corner.

For the first five months of this year, 5 percent of 12,842 coal dust samples were at or below 0.1 milligram, according to MSHA records.

In addition, MSHA is seeing a drop in coal dust samples of 0.2 milligram or less per cubic meter. Experts say many of the samples with this amount of dust also are falsified.

Last year, 24 percent of samples had 0.2 milligram or less of dust, compared with 11 percent for the first five months of this year.

MSHA also has increased its surveillance of mines this year. In 1999, 178 underground mines are receiving additional attention from MSHA inspectors, compared with 145 mines in 1998 and 101 in 1997.

MSHA targeted 33 surface mines this year and last year, and 23 in 1997. There are an

*(Continued on next page)*

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estimated 1,000 underground coal mines and 1,625 surface coal mines operating in the United States.

MSHA has expanded its criteria for giving mines closer scrutiny by adding underground mines that submit many low dust samples. It's also targeting more mines this year for submitting air samples that exceed the legal dust limit of 2.0 milligrams per cubic meter of air.

McAteer said his agency is taking a broad approach to the dust sampling problem, from better enforcement to improving the analysis of the samples to teaching operators how to sample air properly in the mines.

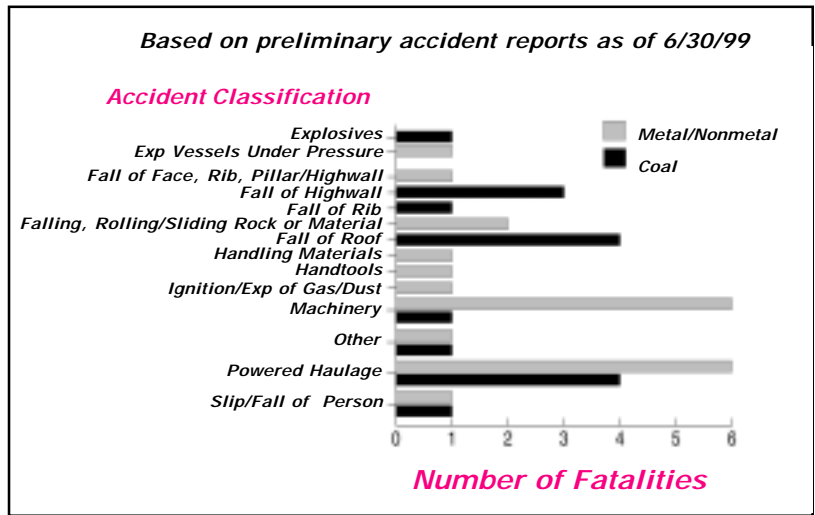
MSHA samples air on five consecutive shifts during bimonthly visits at mines that submitted many low dust samples. At other underground mines, inspectors test the air four times a year. Inspectors test twice a year at surface mines.

Underground mine operators must submit samples to MSHA every two months – though it plans to phase out testing by operators during the next fiscal year, ending the system of self-policing by the coal industry.

*This article is from the Mine Safety and Health News - Vol. 6, No. 14, July 9, 1999*

## Fatality Summary January-June 1999

This article updates the status of fatalities occurring in both coal and metal/nonmetal mines from January through June of 1999. Based on preliminary accident reports as of June 30, 1999, thirty-seven fatalities have occurred at coal and metal/nonmetal mining operations. During this period, sixteen fatalities occurred at coal operations and twenty-one fatalities occurred at metal/nonmetal operations. The most frequent accident classifications were fall of roof, fall of highwall, and powered haulage fatalities in coal and machinery and powered haulage fatalities in metal/nonmetal.



*Below is a summary of coal and metal/nonmetal statistics:*

### Coal Mining

Four of the fatalities were classified as powered haulage. Of the sixteen fatalities, five occurred in Kentucky, four in West Virginia, and three in Virginia. Six fatalities occurred underground and ten on the surface.

### Metal/Nonmetal Mining

Six of the fatalities were classified as machinery and six were powered haulage. Seven fatalities occurred at limestone operations, six at sand and gravel operations, and three at gold operations. Three fatalities occurred in Nevada and two each occurred in Alabama, Mississippi, Tennessee, and Utah. Eighteen fatalities occurred at surface operations and three fatalities occurred underground.

### Submitted by:

John V. Forte, Bulletin Staff Writer  
National Mine Health & Safety Academy

## **National Conference on Workplace Safety & Health Training**

On October 24-26, 1999, at the Henry VIII Hotel & Conference Center in St. Louis, Missouri, the National Institute for Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), and the National Institute of Environmental Health Sciences (NIEHS) will cosponsor a national conference—Planning for the Challenges Ahead. This conference is designed to bring together speakers and participants to strengthen and improve the future of occupational safety and health training. The conference objectives are to:

**Discuss** how changes in the nature of work and the makeup of the work force require changes in training and education programs.

**Explore** how training and education relate to other components of effective health and safety systems.

**Identify** new approaches and technologies that can enhance traditional teaching methods.

**Consider** how to evaluate the impact of training and education programs.

**Stimulate** collaboration among business, labor, academe, professional and trade associations, government agencies, insurers, and others to identify additional resources and shape future directions for training and education.

It is aimed at persons with health and safety training responsibilities such as: Worker Safety and Health Specialists, Occupational Safety and Health Specialists, Trainers, Human Resource Specialists, Safety Officers, Professional/Trade Association Staff, Health Educators, and Loss Control Specialists.

Several MSHA staff will make presentations at the conference and there is one session devoted specifically to mining. Keynote speakers include Mr. Charles Jeffress, Assistant Secretary, U.S. Department of Labor-OSHA, Dr. Kenneth Olden, Director, National Institute of Environmental Health Sciences, and Dr. Linda Rosenstock, Director, National Institute for Occupational Safety and Health.

**For further information go to the NIOSH or OSHA web pages at [www.cdc.gov/niosh](http://www.cdc.gov/niosh) or [www.osha.gov](http://www.osha.gov).**

## **Concerns Over Heavy Metal Exposure Lead to Health Surveillance Guide**

In response to concerns over miners' exposure to mercury, lead, cadmium and arsenic, MSHA has prepared a guide to assist mine operators with health surveillance efforts.

Heavy metal exposures occur along the entire pathway of the mining process, from ore extraction and processing, through equipment maintenance, to the end-products. The guide that MSHA has developed is designed for health care professionals, acting in the scope of their professional license, who may provide expertise to mine operators with their medical surveillance programs. It may also assist other professionals, including those who treat patients who work in the mining industry and have exposure to these metals.

The goal of using medical surveillance is to minimize adverse health effects in exposed miners through early detection of symptoms or other conditions. The results of medical surveillance may suggest the need for further investigation, remedial action, and/or an intervention that is unique to the individual.

*(Continued on next page)*

Medical surveillance can also identify miners who may be at an increased risk of health harm due to an existing risk factor. Medical surveillance provides feedback on engineering and other hygiene controls, especially when the toxic substance cannot be eliminated from use. ■

*Suggestions or comments on the guide can be sent via email to [Lrhines@msha.gov](mailto:Lrhines@msha.gov), or mail to: Ms. LaKeshia Hines, MSHA 4015 Wilson Blvd., Rm 622, Arlington, VA 22203-1984; Ph: 703-235-2625, Fax: 703-235-4369.*

## **MSHA Proposes Self-Rescuer Regulations**

MSHA swung back into the rule making process July 7, announcing that the agency is considering revising its safety standards for self-rescuer devices.

According to officials, the impetus behind the proposed rule is based on continuing evaluation of self-rescuer devices and the public comments received during the recent Self-Rescuer Conference held in Beckley, West Virginia.

Self-rescuer breathing devices, used in underground mines for over 25 years, have a proven track record of saving lives during mine emergencies. However, the devices are subjected to harsh in-mine use conditions and are stored in

rugged mining environments. The rule would help ensure that the devices will function as intended whenever they are needed in mine emergencies, MSHA said.

Miners wear breathing apparatus known as self-rescuer devices to exit a mine during emergencies such as fires, explosions, or other incidents that contaminate the environment. There are two types of self-rescue devices used in underground mines. A filter self-rescuer device (FSR) removes hazardous carbon monoxide through filtration of the mine air. A self-contained self-rescuer device (SCSR) is a closed-circuit breathing apparatus that isolates the users' lungs providing breathable air. Because an SCSR functions in a closed circuit, all contaminants in the surrounding mine air can be eliminated from the air the miner is breathing.

"With this advance notice of proposed rule making, we are requesting the mining community to comment on issues developed at the conference and other issues raised by MSHA," the agency said in a Federal Register announcement. "It is our hope that by hearing the views of the mining community early in our rule making process, we can formulate a workable approach to addressing self-rescuer issues that will best protect the safety of miners."

MSHA indicated that the advanced notice should come as no surprise, noting that the

agency announced that they were developing a proposed rule in their Semiannual Regulatory Agenda published in April. The agency said they will consider the comments received from this advance notice in developing the proposed rule.

"We anticipate that the benefit [of the rule] would be the prevention of fatalities which may occur if these devices are not used or not used as intended," the notice said.

### **Issues to Consider**

MSHA asked that interested parties comment on various issues they have encountered so far in the rule making process. "There have been some instances where self-rescuer devices were not donned properly in an emergency," the agency said. In addition, MSHA points to studies that show that a person's ability to retain the knowledge and skills necessary to properly don a self-rescuer decreases significantly over time.

Specifically, MSHA is requesting comments on how the agency can enhance training to ensure that miners will be able to effectively don their self-rescuers. Annual, quarterly, and semiannual training are being shopped around, as is training in conjunction with fire fighting and evacuation drills.

According to MSHA, some of the concerns with self-rescuer devices were discovered only after the units were deployed in mines. Harsh mining conditions and rugged environments could

contribute to a device not functioning as intended. The advanced rule making notice indicated that the agency is considering modifying service life and requiring more frequent examinations of equipment. In an effort to improve user confidence and successful use, MSHA asked that industry and interested parties weigh in on the method and frequency of such requirements.

Additional questions the agency is pursuing involves storage plans, the distance required to reach devices in the event of an emergency, whether or not to extend SCSR mandates to additional metal/nonmetal mines, the appropriate service life, and whether or not the agency should rely on or integrate international standards into the proposed rule.

Executive Order 12866 requires that regulatory agencies assess both the costs and benefits of intended regulations, and propose regulations on the basis that the benefits justify the costs. Regulatory agencies also are required to base decisions on the best, reasonably obtainable scientific, technical, economic information and other data concerning the need for the consequences of the proposed regulations. ■

***A complete copy of the advanced notice can be found on MSHA's Web site at <http://www.msha.gov/REGS/FEDREG/PROPOSED/1999PROP/99-17092.HTM>***

***Article is from the Mine Regulation Reporter-Vol. 12, No. 14, July 12, 1999***



## ***Abandoned Mines Can Provide Valuable Water Source***

Kentucky's coalfield residents have long blamed mining for much of the region's struggle for clean drinking water.

Now, it appears part of the solution could come from an unlikely place: abandoned underground mines.

Research by the Kentucky Geological Survey in Letcher County could help the county reach its goal of providing public water lines to all residents—not just the 20 percent who have them now.

Dennis Cumbie, a geologist with the Kentucky Geological Survey, said the concept is relatively simple. In order to keep water out of an active underground mine, pumps are used up to 24 hours a day. After the mine is shut down, the water naturally returns.

"It's no longer ground water that's held within the rock, it's ground water that's held within

an open pool," Cumbie said. "Now if you get a pump in here you can pump a lot of water out in a short amount of time because you're no longer having to pull it through the rock formations."

The process of drilling into abandoned mines as a public water source is not new, but is not commonly used in Kentucky.

Citizens have depended on an abandoned mine since the 1930s to provide public water in Wheelwright. In Fleming-Neon, it has been a source for 20 years. In West Virginia, many coalfield towns are dependent on old underground mines for public water.

About 80 percent of residents in Letcher County use a private water source, though many of those have fluctuating amounts of water due to mining in the area, said Jim Tolliver, water and sewer manager in Letcher County.

Mining can make residents' wells go dry for a combination of reasons, Cumbie said. Many times, in the process of pumping water out of a coal seam in an underground mine, water tables can be lowered, affecting area wells. Blasting—primarily from surface mines—can also damage wells, he said.

In Letcher County, many wells are also high in bacteria, Tolliver said.

"We suspect there's a pretty high number of contaminated

*(Continued on next page)*

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wells in the county based on the fecal coliform rates that have been recorded in the North Fork of the Kentucky River," Tolliver said. "A lot of people's wells are alarmingly close to the North Fork."

Letcher County Judge-Executive Carroll Smith said the water struggle is frustrating. At his house in the Kingdom Come Creek community, he said he has three wells, three pumps, and two water filters just to keep the water flowing.

"I'd say it costs \$50 a month to keep water in the house, plus all the work and aggravation that goes into it," Smith said.

Two years ago, community members banded together to form the Letcher County Water and Sewer District, which aims to bring water and sewer lines to all the county's residents. The task could take 15 years and cost an estimated \$50 million, Smith said.

Even with the funds, however, other problems exist. The water treatment plant in Whitesburg gets its water from the North Fork of the Kentucky River. In drought conditions just slightly worse than those seen this summer, even existing customers are at risk of the plant running out of water.

"Periodically during a period of drought the North Fork drops so low that it would not allow us to extend any more

water lines," Tolliver said. We're at the headrivers of the Kentucky River, so no water flows into the county, water only flows out."

That's where at least one of the four wells drilled by the Kentucky Geological Survey in Letcher County could help. In the next year, Tolliver said he hopes to have the paperwork ready to apply for funding to pipe the water drilled from one of the abandoned mines to the plant where it can be of use during a drought.

"We don't plan to use this water on a daily basis," Tolliver said. "In fact, it might not be used but every four of five years."

Still, the water from abandoned mines is not perfect. As a result of the mining, there's an iron concentration in the water that when mixed with oxygen outside the mine, makes red water that stains clothing. The water can be treated, but part of the Geological Survey's research is looking at how the water quality improves with the age of the abandoned mine.

The process of drilling in abandoned mines is similar in cost to traditional methods, but must be done in an abandoned mine that's big enough to provide water over a long period of time. It also must be close in proximity to where it can be used, said Jim Dinger, head of the water resources section of the Kentucky Geological Survey.

The Kentucky Geological

Survey is conducting similar research on abandoned mines in Perry and Leslie counties.

The project started in 1997. Its annual funding of about \$68,000 per year comes from the Kentucky River Authority. ■

*This article is from the Mine Safety and Health News - Vol. 6, No. 14, July 9, 1999*

# The International Society of Mine Safety Professionals Present Awards

By H.L. Boling, C.M.S.P.  
Executive Chairman, International Society of Mine Safety Professionals

Recently, the International Society of Mine Safety Professionals presented several of their highest annual safety awards at the Southwest Safety Congress. The first award presented was the Al Geiser Award presented to Ben W. Sheppard, owner and manager of Ben W. Sheppard Associates, LLC, of Haden Lake, Idaho. The Al Geiser Safety Award was named after its namesake because of his outstanding dedication to the safety and health of others. Al was a visionary that knew that safety had to grow if we were to return our employees home to their loved ones each and every day. Al earned the name "Mr. Safety." The 1999 recipient, Mr. Ben Sheppard, has earned the same name because of his work in the safety and health field. He is responsible for developing and assisting with loss control programs for many companies around the world in an untiring effort to improve safety and health.

Mr. Sheppard has a B.S. degree in Engineering-Safety, and is a certified mine safety professional. He regularly teaches courses at many universities across the Nation.



He is currently an executive director for the International Society of Mine Safety Professionals. He was awarded the International Society of Mine Safety Professionals' "Highest Degree of Safety - International Award" for 1996/1997, the National Safety Council's "Distinguished Service to Safety Award" in 1997, and the International Society of Mine Safety Professionals' "Highest Degree of Safety - United States and its Territories Award" for 1997 and 1998, just to name a few. Ben's dedication to safety has made a real difference in the lives of our miners throughout the world.

The Society presented to Douglas K. Martin, C.M.S.P., the Society's "Executive Chairman Safety Award" for his outstanding dedication to the safety of miners. Doug leads a very proactive state mine safety team, and under his direction as State mine inspector, Arizona

miners have experienced their safest years since the Office of State Mine Inspector was formed in 1912. That impressive record did not just happen; it came about because of Doug's dedication, integrity, expertise, professionalism, and a genuine concern for people. He continually goes above and



beyond what is required. For example, he is the only State mine inspector in the United States to hold the office of general chairman for the National Safety Council, mining section's executive committee, in the section's 84 year history, and was the sixth person in the world to be certified as a mine safety professional. In addition to the International Society Executive Chairman Safety Award, Mr. Martin also received the Arizona Chapter, National Safety Council's prestigious

*Al Geiser Safety Award presented by the International Society of Mine Safety Professionals. Left to Right: Ben W. Sheppard, C.M.S.P., receiving the award from June Geiser, widow of Al Geiser, and Win Geiser, son of Al Geiser*

*Executive Chairman Safety Award, presented by the International Society of Mine Safety Professionals and the Howard Pyle Safety Award presented by the Arizona Chapter of the National Safety Council, Left to Right: Douglas K. Martin, C.M.S.P., Arizona State Mine Inspector, and John Keeler, president of the Arizona Chapter, National Safety Council*

*(Continued on page 16)*

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*International Society of Mine Safety Professionals' Safety Award, Presented by I.S.M.S.P. and the Arizona State Mine Safety Award presented by the A.S.M.I. Left to Right: Dave Newby, General Manager Bowen; Jodi Bowen Newby, CEO - Bowen; Mike Bowen - President; Lauri Richardson - Bowen Safety Supervisor at Morenci; Alfredo Ontiveros, Safety Director Bowen-El Paso*

Howard Pyle Award. This award was named after Arizona's governor Howard Pyle for his lifetime dedication to the safety of others. The award symbolizes Doug as "Arizona's foremost example of safety," a high honor only the very deserving companies or individuals have received over the years.

Last, but far from least, the Bowen Industrial Contracting Company, Inc., received the International Safety Professionals' "Safety Award" for their outstanding dedication to safety and health. This is the first time in the history of the award that a company has received it twice. As a company, Bowen is best known for their "can do" positive motto, "Safety and Production Experts." It is not just something they talk about, but a way they conduct their daily business. For example, two of their job sites, Arizona and Texas, have worked two consecutive years without a disabling injury and on the third site in New Mexico achieved a 62% reduction in overall incidents in just one year. As a company, they continue to set both safety and production records and standards in the mining industry. In addition to the International Society Safety Award, the Bowen Company job site on Phelps Dodge Corporation Morenci property received the Arizona State Mine Inspector's Safety Award for the safest contractor working on mine property. They have received this award

on five previous occasions. During the presentation of awards, Bowen's top management stated, "the safety and



health of our people comes first on every job or procedure, from start to finish regardless of the job size or duration. We firmly believe that when we provide a safe and healthy work environment, we are also providing a productive work environment. Every member of the Bowen team at work is important to us on and off the job." ■

## History

*(Continued from page 8)*

### 70 Years Ago **Roof Fall**

Calaveras Copper Mine  
Copperopolis, CA  
September 4, 1929

A cave-in at this mine resulted in the deaths of five miners and the serious injury of a sixth. The area had not been worked for 27 months prior to the accident and blasting in adjacent stopes had loosened the ore and walls.

### **Explosion**

Covington Mine  
Tahoma, OK  
September 27, 1929

The night shift was just entering the mine when arcs from a firing cable nip ignited gas that had accumulated at the face. Seven men entering the stope and the shot firer working at the face were killed by the blast.

### 35 Years Ago **Explosion**

No. 6 Mine  
Island Creek Coal Company  
Bradshaw, WV  
September 28, 1964

A gas explosion in a temporarily abandoned section took the lives of three men in this mine. Investigators believe that the explosion was the result of an accumulation of methane being ignited by an electric arc from the energized trolley wire and the "nip" of the "nip scooter" operated by one of the victims.



# There Were No Weeping Women: The Marianna Disaster

November 28, 1908

By Steve Hoyle (Bulletin Staff Writer)

The Pittsburgh-Buffalo Company's Rachel and Agnes Mine (also known as the Marianna Mine), at Marianna, Pennsylvania, was considered by all who saw it to be an example of how a modern coal mine should be run. Mine development work began in May 1906 and was completed early in 1908. It was an integrated facility with an up-to-date prep plant and a battery of beehive coke overns.

The village of Marianna had a reputation as a model company town. A miner paid between \$6.50 to \$9.00 a month to live in one of the 282 single-family brick houses in Marianna. Rent money was applied to the purchase price of the dwelling. The town also had a company store, a public school, and a community center. Other facilities included a cement-lined reservoir for drinking water.

The main (Rachel) shaft was 460 feet deep and 20 by 30 feet. Marianna had six main entries; two were used to carry empty cars to miners at the face, and two others were used to carry loads from the face to the bottom of the 460-foot deep Rachel shaft. The remaining

pair of entries carried air out of the mine. The return airways in all cases were separated from the "gangways" where the miners worked to extract coal from the six- to seven-foot thick Pittsburgh seam.

"I thought the Marianna mine was one of the finest mines I was ever in,...as safe as any mine I have ever been in, and the system they had for taking care of the mine and the employees therein was the best I had ever seen"

At about 10:30 a.m., November 28, 1908, one (or more) mammoth explosions tore through the mine. There were 155 men inside; 154 died, one miraculously survived. Here is what happened.

On Saturday, November 28, State Inspector Henry Louttit was inside the Rachel and Agnes Mine. Everything seemed to be in order a 10:00 a.m. when he finished his underground inspection. He boarded the cage and rode to the surface to start inspecting the mine's surface installations. Louttit was in the power house when the explosion occurred. Later stories about the number

of explosions differed; some said there was one big one and others swore that they heard as many as three. Whatever the number, Louttit knew something was terribly wrong, and he left the power house and ran to the top of the shaft. He found the fan stopped and immediately ordered the fan reversed to blow fresh air into the mine.

"Shortly before 11...Saturday morning a terrific explosion took place in the Marianna mine....The explosion came without...warning and with such force that it could be heard for miles. The steel derrick over the No. 2 shaft was wrecked and the cage torn to pieces. The temporary derrick in construction at the Rachel shaft was...blown to atoms and scattered in a thousand different pieces about the opening of the shaft."

On the surface, the scene was all too familiar. Doctors "...and undertakers from all the nearby towns...had been called to the scene." The area around the Rachel shaft was roped off to keep the crowd of distraught and curious onlookers away. The local newspaper reported

*(Continued on next page)*

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that inside "...the ropes squads of men were working... Boilers of sandwiches and small tanks of coffee supplied the men with nourishment as they worked to clear the entrances to the shaft and prepare the scaffolding for the bodies to be laid on, when they were brought to the surface."

"The Marianna disaster was most remarkable not only because the experts are unable to determine its cause, but because of the fact that within a very few minutes after the catastrophe, the situation was known and the suspense was over...the officials were certain that...the end must have come to the men within a very few minutes after the explosion, if not instantly. The crowd...was orderly and quiet. There were no weeping women, no frantic wives and children crowding the ropes to see or to interfere with the work."

Rescue and recovery was difficult because of the force of the explosion and the damage it did to the mine workings. The explosion had demolished the No. 2 shaft, so the rescuers had to use the No. 1 shaft to enter the mine. The temporary derrick at the No. 1 shaft had been destroyed and the shaft was "...nothing more than a big hole in the ground..." according to newspaper accounts. Workers quickly carried away debris, the fan was restarted and the "...shaft put in condition for the men to begin

operating the bucket from inside the shaft."

"Some of these anxious ones had sons, others husbands, and some sweethearts in the workings. The work of the rescuers seemed slow to those waiting on the outside....The spectacle of the persons who had friends in the mine was a sad one. These anxious ones gathered about the huge wood fires which had been built in all sections of the coal company's properties. Scarcely a group was seen which did not contain someone who was watching for the body of a friend to be brought from the pit in the large iron bucket."

At first it was thought that all inside the mine had perished in the explosion, but one man, Fred Elinger, was found alive. He somehow survived although his clothes were blown off, his hair singed, and his eyes badly burned and filled with "...small particles of coal." Elinger barely spoke English and couldn't remember much except that he "...was working laying brick in one of the entries and the first thing I knew a terrible explosion...threw me some distance. My two buddies were also tossed some distance...I heard them for a while and then all was quiet. I was overcome by the afterdamp and fell asleep. I do not know how long I slept." Elinger woke up and was looking for his dinner bucket when he heard a rescue party working close to him. "I thought they were going [to go]

back without me..." he recalled, so "I...yelled as best I could and then they came."

Edward Thomas was at the controls of the hoisting machine that lowered the rescuers into and out of the mine. He operated the hoist for more than 24 hours, since his 19-year-old brother, William, was buried in the wreckage of the mine. Ironically, William had run the hoisting machine before he had been injured and forced to leave the mine. His mother persuaded him to go back to Marianna after he recovered from his injury. William had been working as motorman for less than half a day when he died in the explosion. Edward refused to leave his post until his brother's body was brought out of the mine. His mother, according to the account in the *November 30, 1908, Washington Observer*, was "...almost distracted...and all of the last night was kept under the influence of ether."

Pierre Santos, a miner who worked at Marianna, was luckier. On Friday night, Santos had "...a vision of a frightful disaster in which hundreds were killed and he was the only one who escaped." Santos awoke in such distress that he decided not to go to

The coroners did the best they could to identify

work on November 28. the victims, but in some cases the bodies were so mutilated that positive identification was impossible.

Sixty-one bodies had been recovered from Marianna by early morning November 30. The following Wednesday morning, all the bodies except those submerged in water or covered by debris had been brought to the surface.

The Washington Observer's reporter interviewed Henry Louttit on November 29. He had no idea of a probable cause for the explosion. "I will not theorize on the cause of this explosion...Perhaps after it is all over and I can sit down and think—think clearly—I may be able to give some theory to work on. I am absolutely dumbfounded." Louttit explained that he had "...been inspecting the mine all day Friday, at intervals of every half hour. I started in to do the same thing Saturday and had made several inspections...I found some gas there—it is found in all of these mines, but there was no accumulation of gas..." There were abandoned gas wells near the mine, but Louttit discounted this as a possible reason for the explosion because no "...part of the mine was within [a 50 foot] radius of the outside limits of any gas pool." Summing up, Louttit told the reporter "...I do not know what caused the explosion. But it was a terrific one. It came with great force."

The investigations began

immediately as Henry Louttit, accompanied by a party of five mining engineers and Marianna managers, boarded a bucket and descended into the Rachel and Agnes shaft.

Louttit and his colleagues spent "...about six hours exploring the mine and were more than astonished to find so small an amount of gas that was found only at the face of a few entries that were driven over two hundred feet in advance of the last cut-through. This was proof to my mind that the Marianna mine was not a very gaseous mine and that the cause of the destruction of life and property was nothing else than the dreaded coal dust held in suspension in the air, which was ignited by a small explosion of gas, an electric spark, or a blown-out shot."

"The volume of air in this mine was unquestionably sufficient to dilute and carry off the gas, but the enormous velocity meant that there was an unusual quantity of dust floating in the air. A blown-out shot would have been sufficient to cause the explosion without any accumulation of gas. That tongue of flame [contacting] the dust floating in the air would be sufficient."

Other investigators agreed that a blown-out shot probably caused a dust explosion.

A commission appointed by the Pennsylvania Department of Mines also investigated Marianna. They said, in a report released on December 18, that their objective had been, "...to

locate and follow as far as possible the primary force of the explosion." It was difficult because of the "...impossibility of exactly locating in every entry the primary forces in a terrific explosion of this kind." Except for evidence of explosive forces, all was in order until they reached the No. 5 entry where they "...found evidence in a shot hole in the rib of No. 5 entry where...coal dust had been used for tamping instead of clay." They looked around some more and about 50 feet from the face "...picked up a paper cartridge filled with slack coal prepared for future use in tamping a shot." At the mouth of the entry they discovered "...a small can of black power..." They didn't believe that this was the primary cause of the explosion, but suggested that it indicated an "...utter disregard of the company's rules and regulations, and the recklessness and carelessness of the employees in their daily occupation."

They proceeded to the No. 3 entry. In the right hand corner of the No. 1 butt entry right they found a drill hole. They moved their light closer to the hole and found a charred piece of paper and some fine charred coal. Here was clear evidence of a blown-out shot, just what they'd been looking for. "The condition of this entry and the coking of the rib along the side of the entry gave additional

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evidence of a blown-out shot.” They concluded that the force of the explosion passed on down to the first cut-through and from there to the “...various headings or entries.”

Henry Louttit’s report concurred with the commission’s findings and took them a bit further. Louttit said, the “...blown-out shot at the face of No. 3 Blanche entry...was in all probability the initial point of the explosion, and the blown-out shot was the cause.”

The reports prepared by the commission and by Henry Louttit had similar conclusions. Both recommended the use of safety lamps rather than open lights throughout the mine. They suggested that employment of competent shot firers was essential to prevent future disasters. The shot firers were to use permissible explosives furnished by the company, stem all shots with clay, and use electric batteries to fire all rounds of explosives. In addition, the commission and Louttit documents said that shots should only be fire between shifts when miners were not in the workings.

Both reports recognized the role played by coal dust in propagating an explosion. Dust should be “saturated” with water and fine coal and dust should be “...loaded and taken out of the mine before shooting.” The Commission report closed with a reminder that resonates today. Miners should realize their “...importance as a

factor in not only safeguarding [their] own life, but [also] those of fellow employees....”

Based on the disaster at Marianna, Pennsylvania, mining laws were amended to limit the amount of coal dust permitted in a mine and to require the use of sealed electric cap lamps.★

**For further reading:**

*Annual Report of Department of Mines, 1908. Harrisburg: Pennsylvania Department of Mines, c. 1909.*

*“Courageous Boy at Hoisting Machine - Mother of Dead Man Frantic,” Washington Observer, November 30, 1908.*

*Di Ciccio, Carmen. Coal and Coke in Pennsylvania. Harrisburg: Pennsylvania Historic and Mining Commission, 1996.*

*“Dream Brings Warning of Impending Disaster and Miner Escapes.” Pittsburgh Press, November 29, 1908.*

*“Facts Concerning the Marianna Explosion.” Engineering and Mining Journal, December 12, 1908:1162-1167.*

*“Mine Inspector Is Completely at Sea,” Washington Observer, November 30, 1908.*

*U.S. Mine Safety and Health Administration. Historic Summary of Mine Disasters in the United States, Vol. 1 - Coal Mines - 1810-1958. Beckley, WV: National Mine Health and Safety Academy, 1998.*

## “Not Just Child’s Play”

*Early Mines Took Heavy Toll on Young Lives*

*By Melody Bragg  
(Bulletin Staff Writer)*

As the Nation prepares to pay homage to the contributions of workers, it seems a good time to take a look back at how far we have come. Indeed, today we have laws and regulations designed to protect the health, safety, and rights of workers that would have been unheard of 100 years ago. Yet, to appreciate how far we have come, we must look realistically at where we began.

One area that has seen the greatest positive strides is that of the protection of the young from exposure to dangers on the job. Today, we treat our children as gifts to a greater tomorrow, lovingly encouraged to search for and achieve ever higher goals and dreams. It is a different world from the one that faced young men less than 100 years ago.

Most states enacted laws prohibiting child labor before the turn of the century, but these laws were often ineffective

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and loosely enforced. Families were large, incomes were small, and boys were expected to become men as early as possible.

The following excerpts from the Pennsylvania Reports of Inspectors of Mines give chilling insight into a time when a moment of youthful exuberance or inattention could take the ultimate toll.

**Pennsylvania Reports of the Inspectors of Mines 1880**

**September 1**  
**Elk Hill Colliery**  
**Charles E. White - slate picker**  
**Age - 7**

Remarks of inspector:

*This boy was fatally injured by being caught in the cogwheels of a pony screen; he lived only an hour and a half after receiving his injuries. From the testimony of the boys who were close by when the accident occurred, the little fellow was leaning on the fencing surrounding*

*the cogwheels and was poking his hand at the wheel, apparently to see how near he could come to the cogs. Finally his fingers were caught and drawn in, then his hand and arm clear up to his shoulder, and even his side was drawn in until his body choked the wheels, thus stopping the screen.*

*The slate picker boss on that side of the screen room, Charles Healey, saw the boy get caught and ran to the door of the screen room and cried to the engineer to stop the screens, but he says the screens were stopped by a belt slipping before he received any kind of signal to stop the machinery. The boy's arm was literally ground into a pumice.*

*It is true that the little fellow had no business near the cogwheels; but I must say that it is equally true that he ought not be out of his mother's sight, and should never have been sent to work at his tender age in a breaker - his exact age being only seven years, four months, and eleven days!*

*His parents, notwithstanding their terrible sorrow, cannot escape the just censure of an indignant and outraged public for sending a babe like this amongst the dangerous machinery of a coal breaker. I was informed that the boy's father was at work, and that he had three or four other boys working and earning wages, and, if*

*this is true, as I have every reason to believe it is, then it cannot be said that this small child was put to work from necessity. Had he been the child of a poor widow, with starvation staring her and her little ones in the face, there might be some excuse for this but as it is there is nothing to justify it.*

*The parties in charge of the breaker who employed the child are deserving of severe censure for allowing him to come around the breaker at all. I admit there is no provision in the mine law prohibiting the employment of boys at any of the collieries outside the mines; but I hold that the common instinct of humanity ought to be more than sufficient to prevent the outrage. But, sad to say, it is not enough, and it is hoped that the Legislature will take the matter in hand.*

**November 25**  
**Eaton Colliery**  
**James Merrigan - slate picker**  
**Age 14**

Remarks of Inspector:

*This unfortunate boy was away from his work and had no business under the chutes where he was injured, and he bore the character of being such a wild boy that it was impossible to keep him out of danger.*

*(Continued on next page)*

*George W. Eaton, the breaker boss, had repeatedly warned him that he would surely get killed through his recklessness around the cars and machinery. It is next to impossible to suggest a remedy to prevent accidents to boys of this character, and perhaps the only effective measure is to refuse to employ them either in the mines or about the breakers.*

*Lack of discipline, however, has much to do with the wildness of the boys, and with the heedlessness and recklessness of all classes in and out of the mines, and until rigid discipline is wisely enforced, we cannot hope to prevent accidents of this class. James Merrian was of Irish nationality, died of his injuries on the 27th, in the fourteenth year of his age.*

**April 16**  
**Plank Ridge Mine**  
**Frank Wright - door boy**  
**Age - 14**

Remarks of inspector:

*Fell under a car while riding on it. Had been warned by foreman the previous day to desist from riding on cars; that, if he left the door he was attending, he would be discharged, which order he disobeyed with fatal result.*

**February 16**  
**Marvine Shaft**  
**David McGovern - door boy**  
**Age - 12**

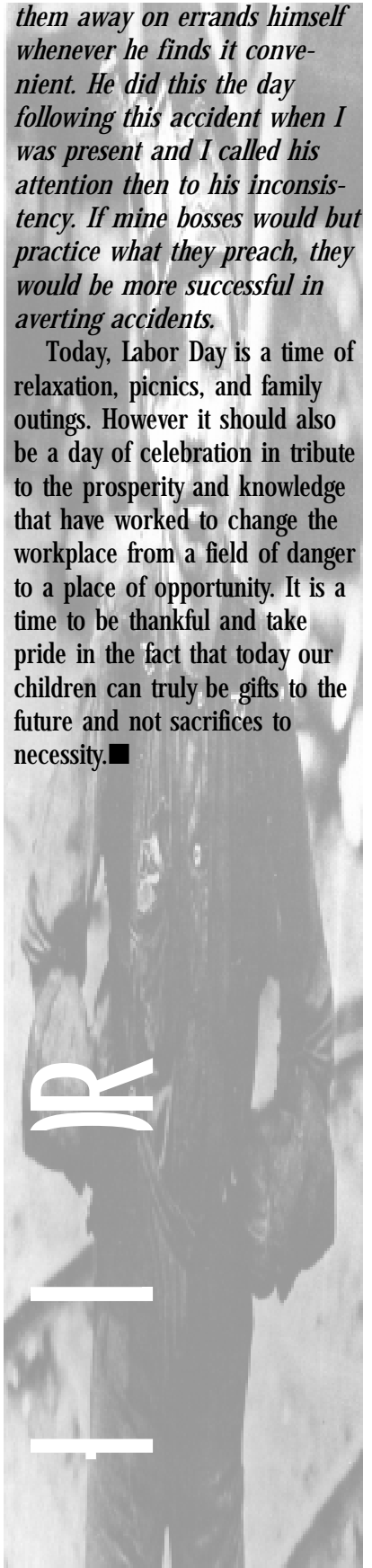
Remarks of inspector:

*This unfortunate boy was away from his post of duty with one of the drivers, James McCarney, who asked him to go with him for the water car. McCarney put him on the mule's back to ride in and when they reached the car he ordered the boy to hitch on the mule. Then McGovern went on out ahead of the car, leading the mule for a short distance. He finally stopped in a very narrow place with the intention of jumping on the forward bumper of the car to ride; and attempting to do so, his foot missed the bumper and the rail of the car caught his head, crushing it against the pillar and tearing the top of his skull clear off. The boy was in the habit of running around the chambers and away from his door with the drivers, and especially with McCarney, who enticed him away on this fatal occasion, and seemed to make a practice of ordering the little fellow around at his pleasure.*

*If boys would attend strictly to their own work and do it themselves instead of ordering one another to do that which does not belong to them, there would never be an accident of this kind. The mine bosses are not blameless in this matter. J.V. Birtley, the mine boss in charge of this colliery, says, "I have repeatedly ordered the door-tenders never to leave their doors for anyone." And yet he sends*

*them away on errands himself whenever he finds it convenient. He did this the day following this accident when I was present and I called his attention then to his inconsistency. If mine bosses would but practice what they preach, they would be more successful in averting accidents.*

Today, Labor Day is a time of relaxation, picnics, and family outings. However it should also be a day of celebration in tribute to the prosperity and knowledge that have worked to change the workplace from a field of danger to a place of opportunity. It is a time to be thankful and take pride in the fact that today our children can truly be gifts to the future and not sacrifices to necessity. ■



## WELLNESS



## Fitness and Wellness

Wellness is any activity, behavior, or attitude that improves the quality of life and enables daily functions to be performed with energy and interest. Physical fitness is obviously an important component of wellness. Other areas include:

- Nutrition and weight control
- Medical examinations and disease prevention
- Stress management
- Personal and occupational safety
- Substance abuse prevention

Fitness is developed and maintained through a regular program of vigorous physical activity which addresses all four components--flexibility, cardiovascular fitness, muscular fitness, and body composition. Such a program contributes to personal health, performance, and overall wellness. Some of the most important benefits of regular exercise are described in the following paragraphs.

### Exercise and Heart Disease

Cardiovascular disease is often referred to as the "disease by choice." It is estimated that 70 percent of all deaths from this disease could be prevented by lifestyle changes. Regular aerobic

exercise is one of these changes.

Aerobic exercise slows the buildup of plaque in the arteries of the heart, helps prevent obstructive blood clots from forming in the arteries, improves the levels of cholesterol in the bloodstream, and contributes to normal blood pressure.

Aerobic exercise also makes the heart a stronger and more efficient pump. Resting heart rate usually decreases after exercise training because the heart can pump more blood per beat. Therefore, it needs to beat fewer times to circulate the same amount of blood.

### Exercise and Cancer

Studies have found that men and women who exercise are less likely to get colon cancer. Research also suggests that women who do not exercise have more than two and a half times the risk of developing cancer of the reproductive system, and almost twice the chance of getting breast cancer.

The *Journal of the American Medical Association* in November 1989 reported that those who exercise moderately, compared to those who do not exercise at all, reduce their risk of early death from cancer and heart disease by **50 percent**.

### Exercise and Weight

According to the National Center for Health Statistics, "half the adult population of the United States (70 million) is considered overweight." Other sources report an even higher figure of 83 percent of the population as overweight (on average, 17 pounds for women and 18.5 pounds for men).

Exercise is essential in any successful weight loss program. Exercise burns calories, so weight lost through an appropriate diet accompanied by exercise is more likely to be fat rather than water or valuable muscle tissue.

Weight loss is also more likely to be maintained with regular exercise. Repeated weight loss and weight gain, known as the yo-yo syndrome, causes a drop in the metabolic rate. By preventing the loss of active muscle tissue, regular exercise helps maintain a healthy metabolism that will assist weight maintenance.

Studies of weight loss participants reported that those who tried to maintain weight loss through diet alone were not successful, regaining an average of seven pounds. However, those participating in an exercise program regained an average of only two pounds.

### Exercise and Aging

Although aging is inevitable, there is great variability in the aging process. Research has shown a direct relationship between physical fitness and the physiological changes that occur in the body due to aging. The rate of deterioration can be slowed by the maintenance of adequate fitness levels through regular physical activity.

Exercise strengthens muscles, joints, tendons, and ligaments. This may prevent, improve, or correct certain ailments such as lower back problems, tendinitis, bursitis, and some types of arthritis. Weight-bearing exercise also prevents the loss of bone minerals which can lead to osteoporosis.

In fact, exercise may actually counteract the process of aging. Exercise slows the loss of stamina, strength, flexibility, bone density, metabolic rate, and general enthusiasm for being active. Exercise may counter balance the age-related decrease in work capacity and physical performance, and contributes to the ability to maintain and sustain an independent lifestyle. This benefit increases the likelihood that you'll enjoy the years of retirement you've worked so hard for. ■

## *What's happening at the...*

### **National Mine Health and Safety Academy**

#### *Conference/Seminars*

**1999 TRAM Conference/National Mine Instructors Seminar** -- October 12-14, 1999

#### **Mine Hoisting Seminar** -- September 28-30, 1999

This seminar is designed for mine personnel involved in inspection and supervision of mine hoists. Participants must have a general familiarity with mine shafts. Some background in mine hoisting or with steel wire ropes will help, but is not necessary.

#### *Catalog of Courses:*

The Academy's Catalog of Courses for MSHA and the Mining Industry for FY 2000 will be available after October 1, 1999. To obtain copies of this Catalog or the products listed below, contact:

Mary Lord  
Phone: 304/256-3257  
Fax: 304/256-3368  
e-mail: mlord@MSHA.gov

#### *Videos:*

The following videos have been produced by the Academy and cost \$8.00 each.

#### **Stay Calm and Stay in the Cab!**

In this video you'll hear how a bulldozer operator felt while he was buried in a surge pile cavity, and how his company's safety efforts, before and during the accident, contributed to his safe recovery.

#### **The Disease...Silicosis (C/MNM)**

Discusses the history of silicosis and emphasizes the hazards for workers in the mining industry.

#### **The Time Was Right! Mary Lou George (C/MNM)**

From miner's daughter to MSHA mine inspector -- Mary Lou George tells her inspiring story. She advises to watch out for others and yourself; never lose respect for the mine; and never forget about safety.

#### **What Does the Term Silicosis Mean to you (C/MNM)**

This video is designed to raise the awareness of silicosis in the workplace and to stimulate a discussion of the disease.

#### **Winter Alert: The Sonman Mine Disaster (c)**

This winter alert video gives a historical review of the Sonman Mine disaster of the 1940s, by recreating underground scenes that dramatize the disaster for a lasting impression.

#### *Publications:*

#### **Fatal Accidents Involving Independent Contractors at Coal Mines, 1990-1998**

Presents information on the 74 fatalities and includes statistics, abstracts, illustrations, and best practices.

#### **Fatal Accidents Involving Contractors at Metal and Nonmetal Mines, 1990-1998**

Presents information on the 107 fatalities and includes statistics, abstracts, illustrations, and best practices.

#### **Fatal Accidents Involving Roof Falls in Coal Mining, 1996-1998**

Presents information on the 36 fatalities and includes statistics, abstracts, illustrations, and best practices.

#### **Surface Haulage Coal Mine Inspector Training**

Reviews 39 topics relating to surface coal mine haulage regulations and procedures. (Cost: Instructor's Guide - \$11.00; Student Text \$6.00)



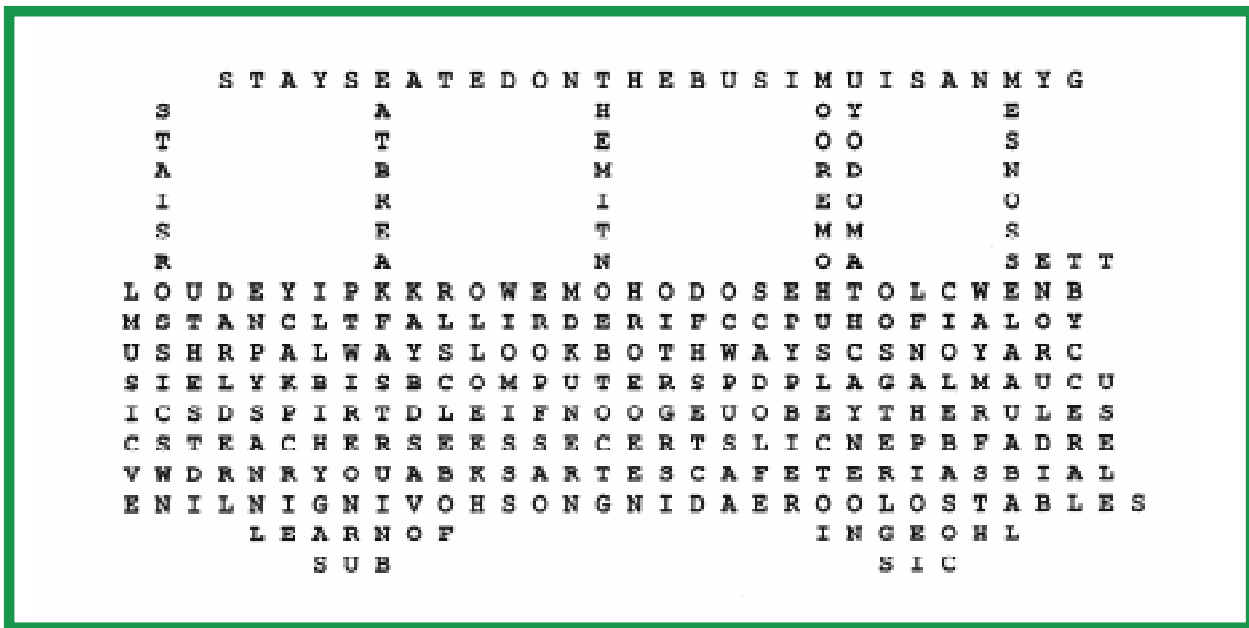


**Hey Kids!**

## Holmes Safety message:

**“Stay out - Stay Alive”  
Abandoned Mines are  
Dangerous!  
Don’t Play on Abandoned  
Mine Property!**

**FIND - A - WORD PUZZLE:** WORDS CAN BE FOUND ACROSS AND BACK, UP AND DOWN, AND DIAGONALLY IN ALL DIRECTIONS. WORDS WILL NOT JUMP ACROSS SPACES. A WORD OR WORDS LIKE THIS: [words like this] are not used in the puzzle; they are for explaining the terms used. Circle the word (s) as you find them in the puzzle. Put a checkmark (✓) next to word(s) on the list as you find them, or cross them out.



## SCHOOL DAYS

ALWAYS LOOK BOTH WAYS  
[BEFORE CROSSING A STREET,  
ROAD, OR HIGHWAY]

ART  
BAND  
BE ON TIME  
BOOKS  
BUS  
CAFETERIA

CHAIRS  
COMPUTERS  
CRAYONS  
DESK  
DO HOMEWORK  
EAT BREAKFAST  
FIRE DRILL  
GOING ON FIELD TRIPS  
GRADES  
GYMNASIUM  
HOMEROOM

LEARN  
LESSONS  
LIBRARY  
MATH  
MUSIC  
NEW CLOTHES  
NO SHOVING IN LINE  
OBEY THE RULES  
PAPER  
PENCILS  
PLAY

READING  
RECESS  
SCISSORS  
STAY SEATED ON THE BUS  
STUDY  
SWING  
TABLE  
TEACHER

**“PLAY IT SAFE AT SCHOOL!”**

# 26

## Words to think about...

Sanity is a cozy lie.  
**SUSAN SONTAG**

There is a good deal too strange to be believed; nothing is too strange to have happened.  
**THOMAS HARDY**

I never knew any man in my life who could not bear another's misfortunes perfectly like a Christian.  
**ALEXANDER POPE**

Dogs come when they are called; cats take a message and get back to you.  
**MARY BLY**

Anxiety is fear of one's self.  
**WILHELM STEKEL**

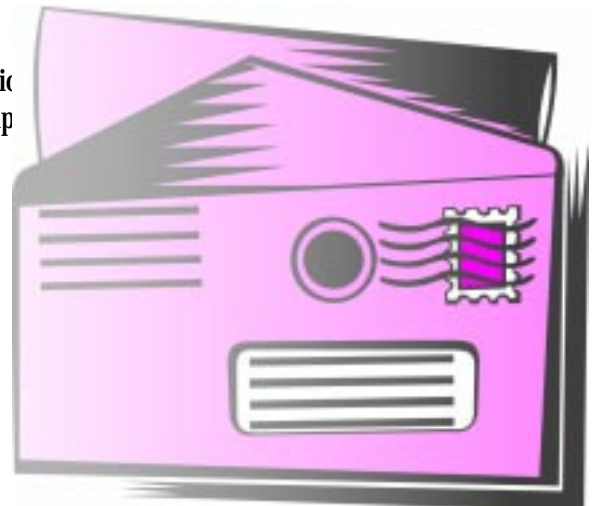
**NOTICE:** We welcome any materials that you submit to the Holmes Safety Association Bulletin. For more information visit the MSHA Home Page at [www.msha.gov](http://www.msha.gov). We need color and black/white photographs suitable for use on the front cover of the Bulletin. We cannot guarantee that they will be published, but if they are, we will list the contributor(s). Please let us know what you would like to see more of, or less of, in the *Bulletin*.

*Please address any comments to:*

**Donald Starr  
Holmes Safety Association Bulletin  
MSHA—US DOL,  
National Mine Health and Safety Academy  
1301 Airport Road  
Beaver, WV 25813-9426  
Please call us at 304/256-3283 or Fax us at 304/256-3524**

**REMINDER:** The District Council Safety Competition is underway—please remember that if you are participating you need to mail your quarterly report to:

**Mine Safety & Health Administration  
Educational Policy and Development  
Holmes Safety Association Bulletin  
P.O. Box 4187  
Falls Church, Virginia 22044-0187**



# Holmes Safety Association Officers and Executive Committee 1998-1999

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<i>Name</i>	<i>Representing</i>	<i>State</i>	<i>Name</i>	<i>Representing</i>	<i>State</i>	<i>Name</i>	<i>Representing</i>	<i>State</i>
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*Mark your calendar*

# ***NOW!***



- September 21-24, National Mine Rescue, First Aid, EMT and Bench Contest, Louisville, KY
- October 7-8, UMR Mine Rescue Underground Contest, Rolla, MO
- December 7-8, NIOSH, Safety Seminar for Underground Stone Mines and Ventilation Information Workshop, Greater Cincinnati-Northern Kentucky Airport
- February 8-10, South Central District Meeting, Arlington Hotel, Little Rock, AR