

The Holmes Safety Association

BULLETIN

May - June 1999



Features:

MSHA Launches "Stay Out - Stay Alive"

New PROP Program

MSHA/NSA Collaboration



Cover story:

*Are Your Employees at Risk
of Being Electrocuted?*



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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.

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.

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**KEEP US IN CIRCULATION
PASS US ALONG**

MSHA launches "stay out - stay alive" national safety campaign

Active and abandoned mine sites can be an irresistible - - and sometimes deadly - - draw for outdoor enthusiasts, particularly children and young adults. Despite repeated warnings, posted signs, and fencing, tragedies involving accidents on active and abandoned mine property continue to make headlines, especially with the arrival of warmer weather and the summer months ahead.

Over the last few years, there have been dozens of tragic incidents involving children and adults venturing onto active and abandoned mine property. They include:

A 16-year-old youth suffered fatal injuries after his all-terrain vehicle became airborne in an accident at a gravel mine near Albany, New York.

A young boy was electrocuted when he contacted a high-voltage power line while sliding down a stockpile at a sand and gravel mine in Grand Island, Nebraska during its off-shift hours.

A 39-year-old man drowned while swimming in an abandoned quarry in Mecklenburg, Virginia. He and two children had trespassed by climbing a fence surrounding the quarry.



A 20-year-old man broke his arm and suffered facial cuts as he fell 60 feet down an abandoned coal mine shaft while hiking with several friends near Johnstown, Pennsylvania.

Three young sisters playing in an abandoned East Milton, Florida clay pit became trapped when a 20-foot-high ledge collapsed during a rainstorm. All three died after being buried by dirt and boulders.

Abandoned underground mines often contain decaying timbers, loose rock, and tunnels that can collapse at any time. They, along with active mines, may harbor undetectable and deadly gases such as methane and carbon monoxide.

Unsuspecting swimmers who flout warnings against swimming in rock quarries may develop cramps from the icy temperatures, and divers may miscalculate the water's depth. Beneath the surface, pieces of mining equipment may be left behind after a quarry operation shuts down, including old machinery, barbed-wire fencing, ropes that entangle swimmers, and sharply edged glass.

MSHA has responsibility for inspection of all active mining operations in the U.S. and enforcement of regulations designed to protect working miners.

MSHA has established a site on its web page to serve as a central clearinghouse from which mine hazard awareness materials and resources may be downloaded. The web address is www.msha.gov. Links to related sites put even more tools at the disposal of any group or individual interested in participating in this safety awareness campaign.

Manhattan abandoned mine site, Nevada



Abandoned mine danger warning sign

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New PROP program calls attention to hazards that lead to roof falls



A new effort is underway to increase awareness among coal mine operators and miners concerning the hazards that lead to fatal roof fall accidents in underground coal mines. MSHA announced a new initiative called the Preventive Roof/Rib Outreach Program, or PROP, which will serve to remind operators and workers of precautions necessary to prevent these accidents.

"The time has come to put an end to the deadly falls of roof and rib that occur all too often in underground coal mines," said Davitt McAteer, Assistant Secretary of Labor for Mine Safety and Health. "There are two things both operators and miners need to do to eliminate these accidents from the mining landscape. One is to conduct thorough and frequent checks of the mine roof. The other is never ever work or walk under unsupported roof."

During the 10-year period in which MSHA's previous roof fall prevention program was in effect, annual roof fall deaths dropped from 34 in 1984 to 7 in 1994. However, roof fall fatalities have become more frequent in recent years. Of the 29 coal min-

ing fatalities in 1998, 14 or 64 percent of the underground deaths were due to roof fall accidents. There were nine roof fall fatalities in 1997, which represented 50 percent of all underground mining fatalities for that year.

McAteer continued, "We need to be sure that each mine operator and each miner at every underground coal mine is educated about the specific hazards that lead to roof falls and how these tragic accidents can best be prevented."

To that end, MSHA has developed the new PROP program, and informational campaign aimed at making miners and operators aware of the problems concerning roof control hazards.

Under PROP, MSHA will target mining operations most often cited for violations of rules concerning roof control and walking or working under unsupported roof. Those mines will receive increased attention from MSHA inspectors who will speak directly to miners and operators about mine roof and rib safety. The inspectors will also provide materials, such as posters, hard hat stickers, and "best practices" cards which state specifically how miners and operators can prevent roof falls from occurring at their mine sites.

"We need to bring the message home to miners and operators that roof falls can occur at their mine when specific safety precautions are ignored," continued McAteer.

To kick off the new PROP program, MSHA held four seminars in coal mining areas of Kentucky, Virginia, and West Virginia. These three states have 78 percent of the Nation's underground coal mines and have experienced 79 percent of all underground roof fall fatalities since 1983.

MSHA will also solicit the assistance of state mining agencies and other mining associations to help bring focus to the problem of roof fall hazards in underground coal mines.

Taken from MSHA News Release No. 99-0510a



DON'T GO UNDER UNSUPPORTED ROOF!



U.S. Department of Labor - Alexis M. Herman, Secretary
Mine Safety and Health Administration - J. Davitt McAteer, Assistant Secretary



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MSHA and NSA Collaboration: Workplace-based Health Sampling Programs

by Janet Bertinuson

Since late 1997, more than 100 miners and mine operators have been trained by MSHA in the elements of a basic industrial hygiene (IH) program and specific sampling procedures for determining respirable silica dust and noise levels in the work environment. Students also learned how to interpret sampling data, and then act upon those



results to ensure a safe and healthful work environment for miners.

This innovative program was developed by the Mine Safety and Health Administration (MSHA) in cooperation with the National Stone Association, (NSA), the national trade association representing the interests and concerns of its more than 650 member companies and the aggregates industry in general. MSHA and NSA jointly conceived the goals for the program, a plan for making sampling equipment available for the students following training and a framework for the three-day class.

MSHA developed the training materials, both written and audiovisual, and provided sampling equipment, instructors and assistants for the classes, and post instruction assistance and equipment loan. NSA recruited stu-

dents from the six geographical areas representing MSHA's six metal and nonmetal districts and made arrangements with eight quarry operators to hold a class at their site. They continue to organize classes throughout the country.

This program, unlike other industrial hygiene short courses, brings the students into the workplace, that is, an aggregate mining and production facility becomes the classroom. It involves a full day of sampling in the quarry environment.

Students are given a theoretical basis for sampling, taught the basics of using and calibrating equipment, and instructed in sampling procedures and calculations and control measures.

They then apply this knowledge while performing full-shift sampling (10-12 hours in this industry).

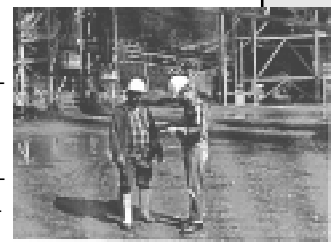
Through hands-on experience students are introduced to some of the problems that occur in "real world" sampling situations, such as batteries failing on equipment, difficulty in locating miners being sampled in a large facility, or impact of poor weather conditions on representative sampling. Students also have the opportunity to spend time in all parts of the host operation thus increasing their firsthand knowledge of hazards and controls present in such work environments. The classes are small - 10 students or less - and there are three to four instructors and assistants in each class to ensure that students grasp the material and the fundamentals of representative sampling. This small class size and low student to instructor ratio is crucial.

Some of the students are corporate safety professionals, but the ma-

ajority work at a local level, primarily in the smaller operations that characterize this industry. Many programs focus on training and retraining persons with a background in industrial hygiene.

This program, however, is aimed at helping miners and persons with responsibility for safety, but with limited or no industrial hygiene background, develop industrial hygiene technician skills in an industry where these skills are almost nonexistent.

Because the majority of aggregates operations are small (less than 10 workers), sampling equipment is generally not available and financially out of reach for most mine operators. As part of the agreement with NSA, MSHA loans the necessary equipment to students for a period of one year from their successful completion of the program. This ensures that students will be able to develop baseline data on dust and noise exposures in their respective workplaces.



Are Your Employees at Risk of Being Electrocuted?

By Dave Carlson, Michigan State Grants Coordinator

Electricity is everywhere. We use it in our homes, offices, and shops, usually with little concern about associated hazards.

Over the years we have conditioned ourselves to overlook safety precautions by having "done it that way before" without serious or fatal consequences. We've saved money and time by not purchasing available safety equipment and by not taking precautions and we may be convinced that the precautions are not really needed. But luck usually runs out in time, and when this happens the consequences may be serious - even fatal.

Many of the costs associated with serious or fatal accidents or injuries in the workplace, which, among other things, include the reputation of management, are not covered by the company's insurance policies and, for many businesses, such an event is the "straw that breaks the camel's back."

Where serious or fatal accidents do not occur, MSHA citations can be very costly, running into thousands of dollars, and when accidents do occur the fines are usually much higher.

For these and other reasons, it is important to take proactive safety steps to minimize or eliminate known electrical hazards. As with other hazards, there are a number of relatively inexpensive steps that can be taken to ensure the safety of workers who use electricity.

Understanding Electricity

A little understanding of electricity can go a long way toward helping us make the right choices. We may think of

electrical current flowing through a wire or other conductor the same way we think of water flowing through a pipe.

Pressure upstream in the pipe causes the water to flow through the pipe. With electricity, voltage (which may be thought of as electrical pressure) causes the current to flow through a conductor (the pipe). The higher the pressure in a water line, the higher the flow rate of water through a pipe of a given size.

Likewise for electricity, the higher the voltage, the higher the flow rate of current (measured in amps) through a conductor of given resistance (measured in ohms).

We can restrict the flow of water in a pipe by putting sections of narrower pipe in the line or by turning a valve in the direction that closes it.

In the case of electricity, some materials are better conductors (have less resistance) and some are poorer conductors.

For example, metals are usually good conductors of electricity, and nonmetals are usually poor conductors. Even a very low voltage will force a lot of current to flow through a metal wire. However, the voltage has to be quite high to force significant amounts of current to flow through a nonconductor like rubber.

Most dry woods, plastics, rubber, etc., are relatively poor conductors (good insulators), and it takes a lot of voltage to cause significant current

through them. However, there is a need for caution because some items made from these "insulating" materials are reinforced with steel fibers. Electrical leaks can also develop in other ways, allowing current to pass through the material.

The presence of moisture greatly increases the danger of electrocution. Don't be deceived by the fact that water itself is a relatively poor conductor. Extremely small amounts of impurities found in all water supplies make it a very good conductor.

Typically in our daily lives, we come into contact with 120-volt AC (alternating current) electrical appliances and tools. Although 120 volts is not considered to be high voltage, it accounts for a large number of electrocutions each year at home and at work.

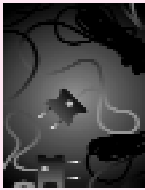
For a 120-volt electrical outlet to supply current, it must be connected to the current source by two wires. One of the wires is the hot wire and the other is the neutral wire. The hot wire has 120 volts (of electrical pressure), and the neutral wire has zero volts (is connected to ground).

If the hot wire were connected directly to the well-grounded neutral wire, current would flow so fast that it would rapidly heat up the wires and start a fire (often referred to as a short circuit). A properly-sized circuit breaker in line detects excessive current flow and opens up, stopping the flow before the wires overheat.

Electrical appliances in a circuit

(continued page 8)

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provide resistance to current flow, which reduces the flow rate to where a circuit breaker doesn't trip.

How Electrocutions Occur

Electrocutions usually occur when a person who is in good contact with the earth contacts a hot wire. The amount of current flowing through the person's body to the earth depends on how good the contact is between the person's body and both the current source and the earth as well as how high the voltage is.

If the person has wet hands, the person makes better contact with the source. If the person has wet feet or is standing in water, on wet ground or concrete, the person makes better contact with the earth. In these cases, even a very low voltage (perhaps 30 volts) could result in electrocution, even when the person's hands and feet are dry and make only poor contact with the current source and the earth. Current flow through the person's body upsets the heart rhythm and causes cardiac arrest.

The use of electric-powered hand tools is often associated with electrocution. An electrical fault can develop in a hand tool resulting in contact between the hot wire and an exposed part of the tool (the tool looks no different than before and works fine.) A person may even have been using the tool in this condition for weeks, months, or years if:

- (1) They have worked only on dry wood floors,
- (2) They have always worn well-insulated rubber boots when using the tool outside or in the basement, or
- (3) They have always worked on a rubber mat. (A person, under certain circumstances, might feel a slight tingle, but think nothing of it.)

But then the unlucky day comes and you decide to use the tool on the garage floor. The garage outlets are not GFCI-protected, there is no time to find a rubber mat to stand on, you

have leather shoes on, and the floor is damp. "Zap" - and it's all over with -- or is it?

If you're really lucky, your neighbor is watching and knows enough to run over and immediately pull the plug and begin CPR. This keeps oxygen flowing to the vital organs while a paramedic is called. When the paramedic arrives, he uses a defibrillator and attempts to restart the heart.

The above situation could occur most any place where the proper precautions are not taken. Any electrically-powered motor is capable of developing a ground fault at any time. If an electric motor on a conveyor, for example, develops a ground fault, a person standing on the ground and touching any point along the conveyor framework may be electrocuted.

How Electrocutions Can Be Avoided

Let's examine the hand tool electrocution in more detail to see what steps could have been taken to prevent it.

The hand tool case is made of a nonmetallic substance and has been assumed all along that it was double insulated.

However, closer inspection shows that the words "double insulated" are not written on the tool, so this protection is probably not available as you have learned the hard way. Even if the tool was originally double insulated, it may have lost its double insulation protection by being dropped, handled roughly, or by getting wet.

The third or ground prong on an electric-powered hand tool plug is a firm indicator that it is not double insulated, in that double insulated tools don't need the third prong.

The ground wire in the cord from this third prong connects to the exposed part of the tool. When plugged into the electrical outlet, this grounding prong connects the ground wire in the tool's cord to the ground

wire running from the outlet to the main electrical panel. At the main electrical panel this ground wire is connected to the same block that the neutral wire is connected to, and it is also at zero volts.

The ground wire, therefore, provides a current path from the body of the tool directly to the ground. When this ground wire is intact and a ground fault develops in the tool, the direct connection to ground results in an immediate high rate of current flow from the tool body to ground, opening the correctly-sized circuit breaker and shutting down the power, thereby protecting the operator from electrocution.

Even if an examination shows that the third prong on the tool's plug is intact, one must look for other reasons for the tool not tripping the circuit breaker once the ground fault condition develops. These may include:

- ✓ The ground wire connection inside the tool is corroded and the ground wire is no longer electrically connected to the exposed parts.
- ✓ The ground wire is broken where the cord enters the plug at another location.
- ✓ The ground wire from the panel to the outlet has a poor connection either at the panel end or at the outlet end. This condition creates a high enough resistance to the current flow to ground so that not enough current flows to trip the circuit breaker. This resistance should measure less than one ohm.
- ✓ The ground wire is broken somewhere between the outlet and the panel.
- ✓ The circuit breaker is not properly sized or is otherwise defective.

The following are test procedures for determining the preceding conditions:

First, we will make a continuity check to ensure that there is electrical continuity between the ground

prong on the plug and the exposed metal parts on the tool. This test is easy to make using an inexpensive meter and should be made on a regular basis and especially after a tool has been dropped.

Next, we will check to make sure that the ground socket on the outlet has a good connection to the neutral block on the main electrical panel. This test should be made at regular intervals.

For a 120-volt AC circuit, we can use a simple tester which can be purchased from most any hardware store for about \$5. The tester looks like a three-prong plug with three lights on the back. To use it, we simply plug it into the outlet. Depending upon which combination of three lights are on, the tester reveals either:

- 1) an open ground,
- 2) an open neutral,
- 3) an open hot,
- 4) the hot and ground are reversed,
- 5) the hot and neutral are reversed (reversed polarity), or
- 6) the outlet is wired correctly.

Some testing devices will usually have a small button which, when pressed, indicates if the outlet is protected by a properly working Ground Fault Circuit Interrupter (GFCI). Pressing the button trips a correctly working GFCI, which must be reset to resume current flow.

The tester can be used to determine if extension cords are good by first plugging the cord into a correctly wired outlet, then placing the tester on the opposite end of the cord. Because the outlet has already been tested and found to be wired correctly, the indicator lights will now show if the cord is good.

Contrary to what many people think, reverse polarity can also be a serious safety concern.

Thus, the current to electrical appliances is usually switched on and off where the hot wire enters the appliance. Turning the appliance off removes any contact between the hot

wire and the appliance. However, if the hot and neutral wires are reversed in the outlet, the hot wire runs all the way through the appliance with the switch off. In the case of an electric toaster, for example, you can be electrocuted by using a fork to retrieve a piece of toast, even if the toaster is off.

The ground wire serves the same purpose in higher voltage circuits, such as those that are used to operate most processing equipment and is absolutely essential for safety. Thus, it is prudent for the operator to make sure that all motors have a sufficiently large wire connecting the frame of the motor back to the ground connection in the electrical panel, and that the resistance between the motor and the panel block is less than 1 ohm. Otherwise, the circuit breaker will not trip in case of a ground fault. This inspection should also ensure that the correct size and type of circuit breaker is in use.

The Ground Fault Circuit Interrupter

The requirement that GFCIs always be applied where electric-powered hand tools are used is another prudent step an employer can take.

GFCI protection is offered by using special circuit breakers located in the electrical panel or by using GFCI-protected outlets (having test and reset buttons). When a tool is plugged into a GFCI-protected outlet, the GFCI continually monitors the current flowing into and out of the tool.

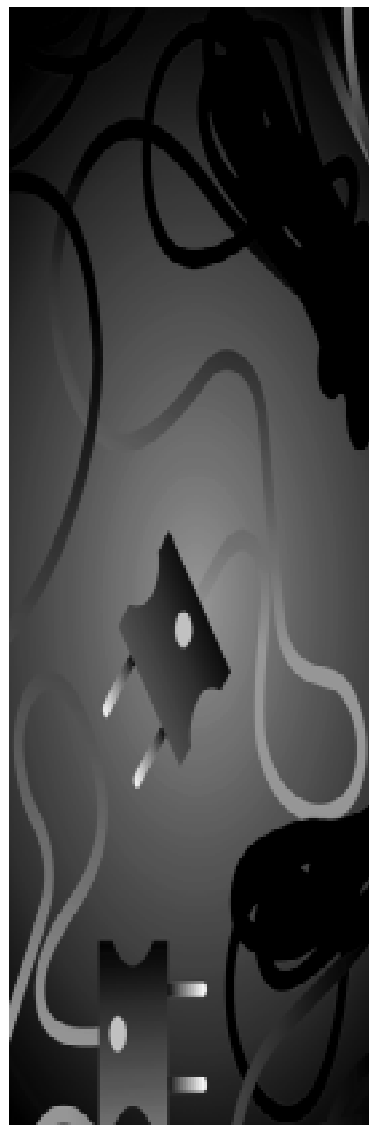
When a ground fault develops and a person's body begins conducting a portion of the current to the earth, the GFCI will trip and stop the flow of current. Only 0.005 amps of current flowing through a person's body will trip the GFCI and this amount will not harm the person.

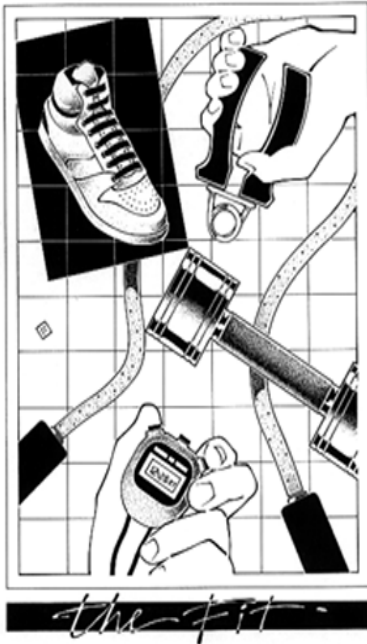
The GFCI, which provides protection against ground faults, even where there is no ground wire, is unique in being the only single device designed

specifically to protect people. A GFCI should be tested often by pushing the test button to make sure it trips, or, where a test button isn't handy, simply plugging in the above mentioned tester and pushing the button to see if the GFCI trips. If the GFCI trips, it is working correctly, and no third plug prong is needed for protection.

While only a few of the hazards in dealing with electricity have been discussed here, taking the precautions suggested will be a significant step toward eliminating electrocutions in the workplace.—

Reprinted from the Mine Safety and Health News, April 16, 1999





The Wellness Forum

Miners work daily in a hostile and physically demanding environment. Because of the physical demands routinely placed upon them, they must not only be able to recognize possible safety and health hazards, but must be able to physically deal with them. Historically, miners have suffered a high rate of both disabling and nondisabling injuries. These injuries have resulted in pain and hardship to injured employees and their families, lost work time, and excessive compensation costs to their employers.

By far, the most prevalent types of injuries suffered by miners are strains and sprains resulting from slips, trips, falls, and lifting. Research has shown that one of the primary avenues available to address such accidents and their resulting injuries is to increase the fitness and wellness of employees.

Because of this, we (editors) are proposing to include a Wellness Forum in each issue of the Holmes Safety Bulletin. Each article will be specifically designed to enhance the physical fitness and health of miners. By providing the tools needed to develop and maintain a high level of physical fitness and awareness, we expect to develop a healthier and more productive workforce with a reduced number of work-related accidents and less lost-work time.

Two specific goals of the Wellness Forum are:

- To promote miner fitness, health, safety, and well-being
- To reduce injuries, disabilities, deaths, and related costs in human and financial resources

It is recognized that these goals are best accomplished through regular participation in a long-term program of comprehensive wellness. Therefore, the wellness articles will provide information on:

- Physical Fitness
- Physiology and Flexibility
- Cardiovascular Fitness
- Muscular Fitness
- Nutrition
- Body Composition and Weight Control
- Substance Abuse
- Managing Stress On and Off the Job
- Maintaining Wellness Through Life-style Management

Wellness

Preventing Hearing Loss Among Miners

by James P. Rider

Overexposure to noise continues to be a widespread serious health hazard in the U.S. mining industry. The use of heavy equipment, the drilling of rock, and a confined work environment are just a few of the factors that contribute to high levels of noise exposure.

Prolonged exposure to hazardous noise levels over a period of several years -- with no hearing protection -- will almost always cause permanent damage to the auditory nerve and almost certainly affects an individual's quality of life. Generally, the greater the noise exposure, the more rapid the loss.

Unfortunately, loss of hearing occurs gradually and is so subtle that an individual may not realize it until

Noise-induced hearing loss is irreversible -- prevention is the only "CURE".

a substantial amount of hearing is lost. This damage -- known as noise-induced hearing loss (NIHL) -- is *irreversible*, that

is, there is no medical or surgical treatment that will restore this type of lost hearing.

A recent NIOSH analysis of audiograms showed that by age 50 about 90 percent of coal miners and 49 percent of metal/nonmetal miners had hearing impairment. By contrast, only 10 percent of the population that experienced nonoccupational exposure to noise had any hearing loss by age 50. NIOSH recognizes that NIHL is one of the 10 leading work-related diseases and injuries in the nation.

One goal of the Hearing Loss Prevention Branch at the NIOSH Research Laboratory in Pittsburgh is to develop a program that will provide noise control techniques and equipment modifications that could reduce

NIOSH will survey, analyze, and assist in reducing noise levels by "engineering them out".

noise levels to miners. This program of assistance to the mining community would involve noise surveys of equipment, workers' exposure levels, analysis of data, and control of mining noise problems.

The level of assistance available will range from simply providing information to developing engineering solutions, as well as participating in the implementation of retrofit noise controls. Requests from mine operators and MSHA personnel will identify where technical assistance may be needed.

One intervention activity was performed at a pulverizing operation at a silica processing plant. Acoustic tests were conducted at various locations throughout the mill building. Analyses of the data indicated excessively high noise levels around high-pressure air slide blowers on the second floor of the mill. A simple, inexpensive plywood enclosure, lined with a 2-inch fiberglass material, was constructed around the blowers. Follow-up surveys showed a significant reduction of noise in the immediate area surrounding the blowers.

Another area of research, requested by MSHA, is to reduce noise exposures of air-track drill operators. Air-track drills generate noise

Noise from air-track drills is hard to control.

at levels in the 100 to 110 dBA range and are historically difficult to bring into compliance. Possible solutions include retrofitting cabs at either the drill mast or the tramming location, and could range from simple partial barriers to complex full enclosures.



James P. Rider, Operations Research Analyst, 412/ 386-4109 (jlr4@cdc.gov)



The Avondale Disaster

by Steve Hoyle

The Avondale Colliery

One hundred seventy-nine miners perished in a fire at the Delaware, Lackawanna and Western Coal Company's Avondale Colliery on September 6, 1869. Located about six miles west of Wilkes-Barre, Pennsylvania, and equipped with the latest in mining machinery and equipment, Avondale was considered a "safe" mine that could produce up to 500 tons of anthracite every day.

Avondale's single wood-lined mine shaft was about 237 feet deep with entries extending from either side at the bottom. A wooden headhouse and breaker were built on top of the shaft.

The workings were ventilated by a furnace about 150 feet from the bottom of the shaft. Heated air from the furnace rose up the shaft and pulled in fresh air to ventilate the mine. Mine foremen were aware of the danger posed by the furnace and made sure to wet down the shaft timbers two or three times a week. Avondale had been shut down before the accident, however, and the timbers had dried.

Fire!

Early on the morning of September 6, the furnace was started with oil-soaked wood. Sparks from the furnace flew up the shaft to lodge in the wooden lining

where they smoldered for several hours before igniting the shaft timbers. Though the fire was discovered at about 9:00 a.m., by then the flames were roaring up the shaft where they spread quickly to the headhouse and the breaker.

On the surface, fire companies from surrounding communities arrived at the mine where they found a fire that was out of control and threatening to spread to nearby woods and miners' houses. The firefighters contained the surface blaze, began to pump water into the shaft, and extinguished the fire in the headhouse and the breaker. The fire was out by mid-afternoon.

Rescue and Recovery

Thousands of people gathered at the shaft opening as rescue work began. A derrick was set up at the top of the shaft, and at about 6:00 p.m., nine hours after the fire was discovered, a box containing a lighted lantern and a dog was lowered into the shaft to check the air. When the box was hoisted up about ten minutes later, the lantern was out, but the dog was still alive.

Charles Vartue, a local miner, was lowered into the shaft. He found good air, but could see that the shaft was blocked with debris. A rescue party, formed to clear the debris, reached the bottom of the shaft and explored some 80 yards into the mine before being forced to turn back by bad air and a closed mine door. Blackdamp suffocated a party lowered into the shaft, and rescue work stopped until a ventilation fan could be brought in from Scranton.

The fan was set up and started and air flowed into the mine. On September 7, a group of 50 volunteers resumed the rescue effort by going into the mine, clearing wreckage and searching for victims and survivors. It was tough going, the air worsened as they proceeded, and they were forced to withdraw until

more air could be forced into the mine.

Reaction

Just before the Avondale disaster, the Pennsylvania legislature had passed a law that regulated mines in Schuylkill County. It addressed ventilation, mine communications, haulage, illumination, and provided for mine inspection and regulatory enforcement. The law did not apply to Avondale because the disaster occurred in Luzerne County.

Public outcry for remedies to prevent future disasters mounted swiftly, and mine safety occupied the attention of Pennsylvania legislators for most of 1870. Their response was to pass the Act of 1870 - the first significant piece of mine safety law in the United States.

The Act of 1870

A look at the Act today reveals the ancestry of a lot of today's health and safety law. For example, the 1870 Act required that mines be mapped and that all coal mines have two outlets to the surface, not just one as had been the case at Avondale. Other provisions addressed the amount of air to be used to ventilate a mine, communications systems, hoisting, and the jobs to be performed by "mine bosses." The law specified that boys under 12 years of age could not go underground. Another provision of the law required that abandoned entries and slopes had to be fenced.

Mine inspectors were expected to examine mines, ensure compliance with the law, investigate accidents, and prepare reports about their activities. The inspectors had right of entry and could apply to the courts for closure orders.

The law of 1870 reflected the thinking of its time and applied only to operations in one state. But it marked the beginning of a concerted effort to improve health and safety in coal mines.

Fatality Summary Jan-Apr 1999

Number of Fatalities

This article updates the status of fatalities occurring in both coal and metal/nonmetal mines from January through April of 1999.

Based on preliminary accident reports as of April 30, 1999, twenty-three fatalities have occurred at coal and metal/nonmetal mining operations. During this period, nine fatalities occurred at coal operations and sixteen fatalities occurred at metal/nonmetal operations.

Powered haulage, fall of highwall and fall of roof fatalities in coal, and powered haulage and machinery fatalities in metal and nonmetal were the most frequent accident classifications.

Accident Classification

COAL

Explosives: *coal 1*

Fall of Highwall: *coal 2*

Fall of Rib: *coal 1*

Fall of Roof: *coal 2*

Powered Haulage: *coal 3*

METAL/NONMETAL

Exploding Vessels Under Pres: *m/nm 1*

Fall of Face, Rib, Pillar/Highwall: *m/nm 1*

Falling/Sliding Material: *m/nm 2*

Handtools: *m/nm 1*

Machinery: *m/nm 3*

Powered Haulage: *m/nm 5*

Fall of Person: *m/nm 1*

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

Coal Mining

Three of the fatalities were classified as powered haulage. Of the nine fatalities, three occurred in Kentucky and two each occurred in Virginia and West Virginia. Four fatalities occurred underground and five occurred on the surface.



Metal/Nonmetal Mining

Five of the fatalities were classified as powered haulage and five were machinery. Six fatalities occurred at limestone operations, five occurred at sand and gravel operations, and three occurred at gold operations. Two each occurred in Alabama, Tennessee, Utah and three in Nevada. Twelve fatalities occurred at surface operations and four fatalities occurred underground.



“Only Two Men Were Actually Burned” The Granite Mountain Mine Fire - June 8, 1917

by Steve Hoyle

The few sentences on a single sheet of brittle and yellowing paper in the file folder summarize the worst metal/nonmetal mining accident in our country's history.

“...the flame of a carbide lamp accidentally set fire to the uncovered and frayed insulation of an armored power cable near the 2,400-foot level of the Granite Mountain shaft.... the fire spread rapidly and filled the mine workings with smoke and gas. At the time, 410 men were working underground, 247 of whom escaped by various means, but most of the 163 remaining were probably overcome soon after the fire began and perished. Only two men were actually burned.”

The North Butte Mine

North Butte mine was on a 220-acre site. About 1,160 men worked there to produce each day about 2,000 tons of ore which yielded copper, silver, gold and zinc.

North Butte had two main shafts; Granite Mountain and Speculator (see plan-page 15). Granite Mountain was a 3,740-foot deep downcast (air flowed in), and Speculator was a 3,000-foot deep upcast (air flowed out). They were connected at different levels. Gem and Rainbow were two secondary shafts.

North Butte connected to a trio of other operations: the Badger, the High Ore, and the Bell-Diamond.

Inside Granite Mountain, a pair of hoists carried ore. A third compartment, separated by a timber lining, held the “chippy,” an auxiliary cage used to transport men and supplies. Granite Mountain also had electric powered and hand signal systems for communication.

Large surface fans supplemented by an elaborate system of underground auxiliary fans ventilated North Butte. Granite Mountain was the main source of intake air but North Butte also drew air in from the adjacent Badger and High Ore mines.

Return air was directed to the Speculator, Gem and Rainbow shafts.

The Cable

Granite Mountain crews in June were working on a big fire prevention project to install a new sprinkler system in the Granite Mountain shaft. Part of the plan called to move the electrical transformer station at the 2,600-foot level several hundred feet to a new spot. A new transmission line would have to be installed after the transformer station was relocated.

On June 8, three electricians, three ropemen, two shaftmen, and a hoistman gathered up their tools and equipment and prepared to lower a 1,200-foot long lead-armored cable into the Granite Mountain shaft. Working steadily, they detached the rope from the chippy cage and put it in the shaft's pipe compartment. Next, they lashed the cable to the rope with four-foot lengths of hemp line and lowered it into the shaft. After 16 hours of tough, tedious work the end of the cable was at the 2,600-foot level. Now, they had to move the cable to the new transformer station. They didn't think it would take long, but all thoughts of an easy job vanished when they discovered about 200 feet of cable twisted around the hoist rope.

Now, the rope lashings would have to be removed and the cable untangled from the hoist rope before they could drag it into the level.

All went smoothly for a time, but suddenly the cable started to slip as they removed the lashings. The men dived for safety as the heavy, lead encased cable crashed into and slammed against timbers and other obstacles as it careened down the shaft. The armor tore off the cable as it fell, exposing and fraying its highly flammable oil-impregnated cloth insulation.

That was enough for one day. A quick examination showed that the cable was ruined and would have to be replaced. The men had worked nonstop for almost 18 hours, so they told the assistant foreman about the fallen cable, left the mine and went home to rest.

Fire!

At about 11:30 p.m. when the assistant foreman, two shaftmen, and a shift boss boarded the auxiliary cage, all they knew was that the cable was caught and tangled in the shaft between the 2800 and 2400-foot levels. The cage descended swiftly, stopping at a point just below the 2,400-foot level. A few minutes later a shift boss and Ernest Sullan,

the assistant foreman, stood on the shaft timbers peering with a hand carbide lamp into the darkness trying to find an end of the cable to attach to the cage to pull it up. The lamp's flame touched the frayed cable insulation - it was about 11:40 p.m.

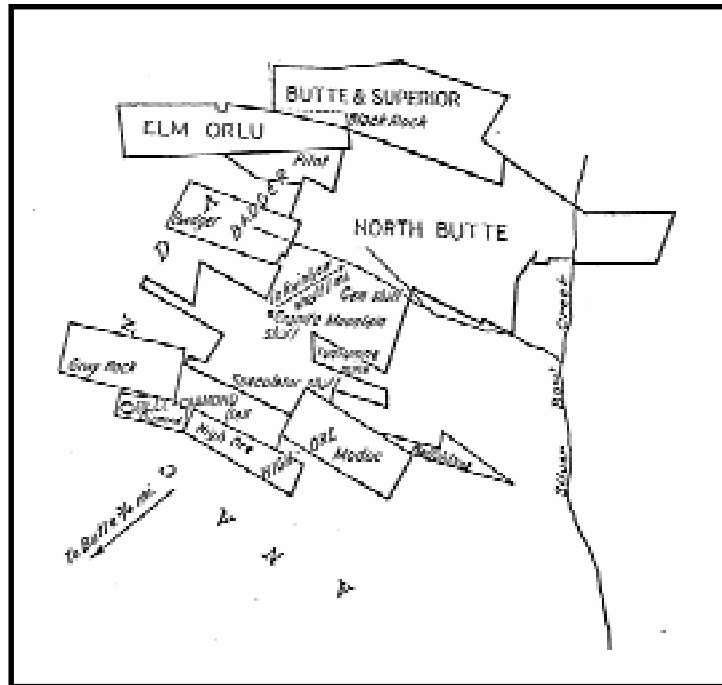
The oil-soaked insulation and timbers burst into flame. In five minutes the fire turned the chippy compartment from a downcast into an upcast. The smoke and flames drove the men back from the 2,400-foot level in less than 15 minutes. Smoke oozed down the 2475-foot level crosscut south toward Speculator. At about the same time smoke billowed from the Speculator shaft, the signaling system in the Granite Mountain shaft burned out.

By 12:30 a.m., Granite Mountain's 2,000 and 1,800-foot levels filled with smoke. The doors at the 2,000-foot level had been temporarily blocked which short circuited the smoke into the "...main downcasting compartments...where it flowed into the 2400, 2600, 2800, and 3,000-foot levels."

At about 1:00 a.m., thick smoke spreading to the adjacent High Ore, Diamond, and Badger mines drove the night shift men out of those workings.

Escape

Escape was the first thought of the 410 men inside North Butte, but the smoke and fumes were too fast for many of them. Only 32 miners working near the Speculator shaft reached the 400 and 600-foot levels through manways and were hoisted to the surface, and approximately 60 others made their way to the High Ore mine at the 2,200, and 2,400-foot levels where they were able to get out.



Plan of the Butte Mining District.

Meanwhile, Ernest Sullan traveled more than three miles underground "...much of which was climbing up and down ladders, also encountering gas in several places." Sullan lost his life while guiding "...at least 50 men to safety."

Trapped!

At about 12:30 a.m. on the 2,400-foot level of the Granite Mountain shaft, 29 men, led by veteran miner Manus Duggan, found themselves trapped with no way out. Deciding to build a barricade, Duggan directed the work, and by one o'clock the men settled in to wait. Some of them played cards, others wrote letters, and a few more paced restlessly. Twenty-four hours later, the temperature was 84 degrees and the air inside the barricade so bad that the men could not light matches or their carbide lights. By 1:00 p.m. on June 10, the men behind the barricade were hungry, thirsty, and having difficulty breathing. Duggan decided that it was time to break the bulkhead and move out into the crosscut.

None of the miners had lights as they groped their way forward in the darkness 1,300 feet to the Speculator shaft where they were found and hoisted to the surface. Duggan and three others did not make it as they went the wrong way after leaving the barricade and were overcome by gases.

It was about 85 degrees, humidity was 98 percent on the 2,200-foot level, and the place was filling rapidly with gas. Shift boss J. D. Moore and seven men got to the 2,254 crosscut where thick smoke and gas forced them to stop and barricade. There was no electric power in the mine, but compressed air was still available. One miner used a jet of compressed air to keep the gas away from the others for several hours as they worked to build the barricade.

Granite Mountain Mine Fire (Cont.)

Behind the barricade for about 35 hours the semicomatose men huddled in oxygen-deficient air until they were rescued. Moore didn't survive. He and another miner perished just before help arrived. Two rescuers were overcome because they stayed inside after their oxygen apparatus ran out to help the trapped men.

Nineteen miners died on the 2,600 level when they were suffocated by gas seeping in through nearby loose material while trying to barricade.

Two other miners working in a drift were trapped when the 700 level filled with gas. They turned on compressed air in the drift, covered themselves, and lay face down on the floor for about five hours until the air failed. They knew they would die if they stayed where they were, so they got up and walked to the Granite Mountain shaft where they met a rescue party who led them to the Speculator shaft where they were hoisted to the surface.

Rescue and Recovery

Rescue parties were in the North Butte within 30 minutes of the start of the fire. At 1:00 a.m., (about the same time the first rescue party entered the mine via the Speculator shaft and removed two bodies from the 700-foot level), J. M. Boardman issued a call to area mines for assistance. He began organizing rescue activities using the Badger, High Ore, and the Speculator shaft as bases of exploration.

Early on the morning of June 9, urgent telegrams from Butte arrived in Red Lodge, Montana, and Colorado Springs. The news was not good. Bureau of Mines Rescue Car No. 5, based at Red Lodge, and Rescue Car No. 2 at Colorado Springs, were to proceed as quickly as possible to Butte.

Each of these 85-foot long railroad cars was a self-contained mine rescue station equipped with sets of breathing apparatus, other rescue equipment and supplies, and crewed by highly trained personnel.

Car 5 arrived from Red Lodge at about 3:00 p.m. on June 9, and Car 2 at about 8:00 a.m. on the morning of June 11. The Bureau men from Car 5 went inside immediately to close and seal doors on all drifts leading to the Granite Mountain shaft.

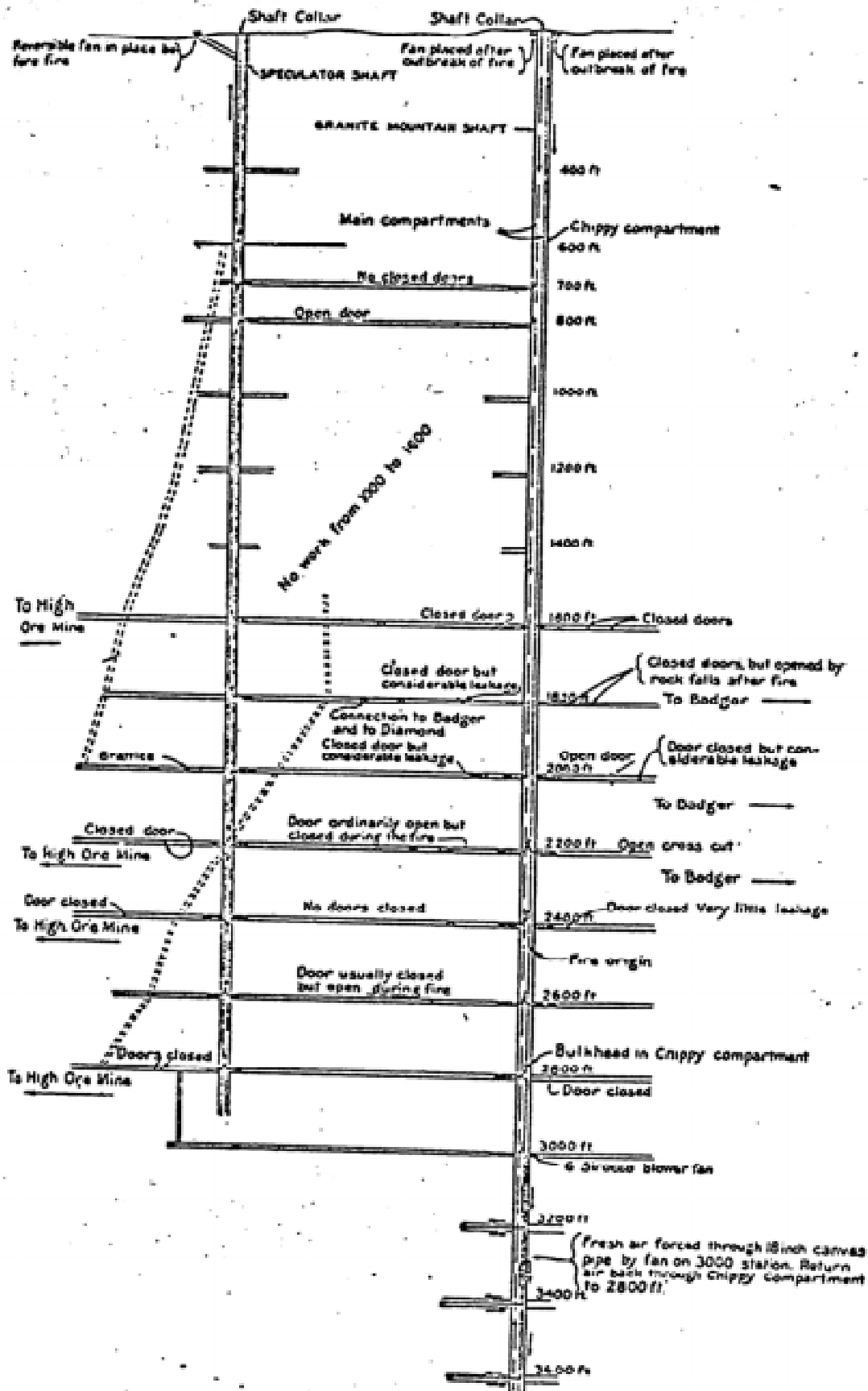
The size and scope of the disaster forced the rescuers to use men as guides who hadn't been trained in the use of breathing apparatus. The guides received a brief training session, donned the equipment, and went to work. Inside, the guides and rescuers found the Granite Mountain shaft (shown in diagram-page 17), badly caved in spots between the 1,600 and 2,600-foot levels. The 2,000 station had caved completely and was filled with debris. From the 3,000 to the 3,700 levels, the shaft was filled with water and debris. To get to where they were needed, rescue parties often traveled a mile or more over obstacles and through smoke, steam and toxic gases "...so dense that a sense of direction was maintained only by feeling the track rails." It was one of these parties that rescued the men who, led by J. D. Moore, had barricaded themselves at the 2,200 level.

In eight days, the rescue parties (drawn from 18 mines in the Butte area), explored 30 miles of drifts and crosscuts and 15 miles of stops, raises, and manways to recover the bodies of 163 victims, 150 of whom had succumbed to carbon monoxide poisoning. Although 20 workers suffered "part or total prostration" none were lost in the rescue and recovery effort.

The last paragraph of the booklet "Lessons from the Granite Mountain Shaft Fire" said, "...hazards unavoidably inherent in underground mining demand eternal vigilance against every form of carelessness...Every effort

to educate underground workmen in the hazards of their work and what should be done to make their operations safe should receive hearty cooperation and support from both employers and employees."

For further reading see:
Bureau of Mines Bulletin 188, "Lessons From the Granite Mountain Shaft Fire, Butte" (1922).
Bureau of Mines technical Paper 229, "Accident Prevention in the Mines at Butte, Montana" (1920).



Section of Granite Mtn. Shaft.

Mining Our History An Overview of Disaster Anniversaries

130 Years ago

Mine fire

Avondale Mine
Plymouth, PA
September 6, 1869

One hundred and eight miners lose their lives through asphyxiation when a mine fire traps them underground. Two others die while involved in a heroic rescue attempt.

100 Years ago

Ignition of gas

Carbon Hill No. 7 Mine
Carbonado, WA
December 9, 1899

Thirty-one miners die when methane gas is ignited by an open safety lamp or smoking.

75 Years ago

Ignition of gas

McClintock Mine
Johnson City, IL
January 25, 1924

Thirty-three miners lose their lives when an open lamp worn by trackmen ignites gas liberated by a roof fall.

Ignition of gas

Lancashire No. 18 Mine
Shankton, PA
January 26, 1924

Only one day after the McClintock disaster, 36 miners are killed when a "flameproof" mining machine ignites gas underground.

Inundation

Milford Mine
Crosby, MN
February 5, 1924

Forty-one lives are lost when waters from a cave entombs miners underground. The mine fills with water completely in 15 minutes.

40 Years ago

Ignition of gas

Number One Mine
Robbins, TN
March 23, 1959

Nine miners die due to the ignition of gas which had accumulated while a fan was shut down. They are victims of burns and toxic fumes.

Inrush of hot gases

Sherwood Mine
Iron River, MI
June 1, 1959

An inrush of hot gases and steam at the Sherwood Mine causes the deaths of six men; all from extensive second and third degree burns and inhalation of hot gases. Six additional men are hospitalized with severe burns.

Inundation

River Slope Mine
Port Griffith, PA
January 22, 1959

The Susquehanna River broke into the River Slope area of the May shaft section, entombing 12 men and causing extensive property damage. No bodies can be recovered and the mine is abandoned.

25 Years ago

Hoisting

Beckley No. 1 Mine
Bolt, WV
January 7, 1974

Three men are killed and three others injured at an intake air shaft construction site when a platform falls 100 feet into 14 feet of water.



What's happening at the... National Mine Health and Safety Academy

In our continuing effort to improve the health and safety of the Nation's miners through education and training, the Academy is always creating new or revising old programs -- videotapes and printed materials. So that the industry is up-to-date on what's available from the Academy, we will include a list of our latest programs, courses, seminars, videos, etc., in each issue of the Bulletin. Included in this issue of the Bulletin are some of the products that have become available since our "Catalog of Training Products for the Mining Industry -- 1998" was published.

Conferences/Seminars:

Surface Haulage Safety Seminar

August 17-29, 1999

A few of the topics to be covered are: Care and Maintenance of Off-Road Tires; Crane Safety; DOT Safety Procedures and Criteria; Safe Handling and Transport of Bulk Blasting Agents; New Automation Technologies for Conveyor/Prep Plant/Mill Control Systems; etc.

1999 TRAM Conference/National Mine Instructors Seminar

October 12-14, 1999

A few of the topics to be covered are: Innovative Instructional Techniques; Instructional Technology and Computer Applications; Underground Mine Safety (MNM & Coal); etc.

For the past three years, MSHA has conducted a training products competition in conjunction with this conference. State government, the mining industry (both coal and MNM), and academia submit training programs they have developed. A panel of judges reviews each program and a winner in each category is de-

clared. If you have material you would like to enter into this competition, contact Jimmy L. Shumate at 304/256-3353.

For more information or to enroll in these seminars contact:

Student Services Branch

Phone: 304/256-3252

Fax: 304/256-3251

Looking for Presenters

We are always looking for people to conduct workshops on topics relating to the health and safety training of miners. If you are interested in being a presenter at workshops or conferences, please contact Sharon Casto at 304/256-3320.

Videos:

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

Coal Dump Point Safety--

Illustrates most common hazards at dump points and piles and will demonstrate recommended safety practices.

Customer and Delivery Truck Drivers Hazard Training (MNM)--

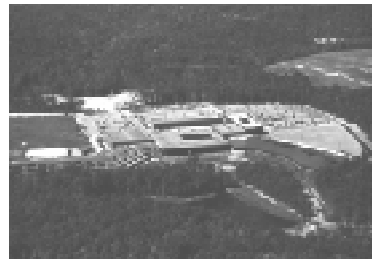
Provides hazard information for truckers who frequent mine sites.

Dawn of a New Day: Continuous Haulage Safety (C)--

Addresses the hazards associated with continuous face haulage systems.

Eliminating Silicosis--

Discusses some of the historical steps taken to reduce the exposure to silica



and answers such questions as: How bad can it be? How quickly can it be contracted without preventive steps?

Fatal Alert: Entry Into Storage Silos--Addresses hazards involved in cleaning a storage silo.

Good Berms Saves Lives (MNM)--Discusses one mine's concern about berms at their mining property.

Publications:

Analysis of Underground Powered Haulage Lost Time Accidents, January 1990 -

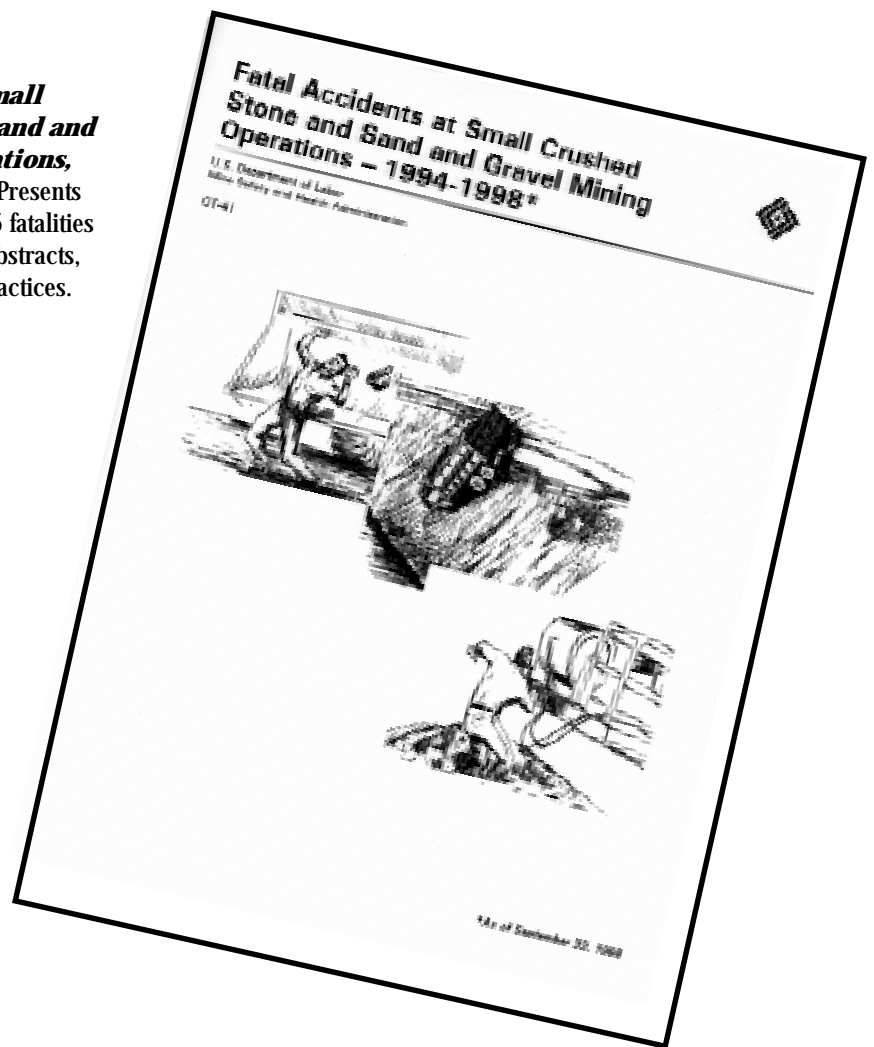
March 1998 (C/MNM)--Identifies the major factors that led to these accidents, and recommends accident prevention methods to reduce the frequency of them.

Dust - What you Can't See CAN Hurt You! (C) -- Discusses hazards associated with dust exposures in coal mining and provides information to miners and operators on a variety of methods of preventing and reducing these exposures.

What's happening...

(continued)

Fatal Accidents at Small Crushed Stone and Sand and Gravel Mining Operations, 1993-1998 (MNM) -- Presents information about the 55 fatalities and includes statistics, abstracts, illustrations, and best practices.



Fatal Accidents Involving Construction, Maintenance and Repair at Coal Mines 1996-1997-

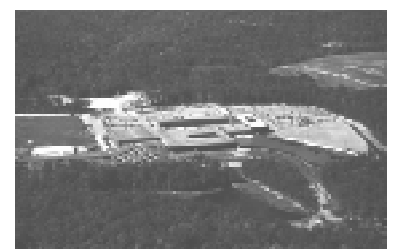
Presents information about the 20 construction fatalities during this period, and includes statistics, abstracts, illustrations, and best practices.

Fatal Accident Involving Construction, Maintenance and Repair at Metal/Nonmetal Mines, 1996-1997-

Presents information on the 41 construction fatalities during this period, and includes statistics, abstracts, illustrations, and best practices.

For more information about these products, call:

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



"The Eyes Have It"

by Dave Anspach

The company I worked for, Bethlehem Steel, came out with a new policy -- everyone had to wear personal safety equipment, like hard hats, safety glasses, and safety shoes. I was one of those invincibles who thought that I didn't need that stuff. Hard hats make you bald, I proclaimed, safety glasses make you blind, and safety shoes make you stumble. I had it all figured out. I even went to extra effort to avoid wearing safety glasses -- when no boss was around.

One day, Ed R. and I were working in the load center with the engineers, testing breakers and working with a couple of generators. We'd been at it all day long -- the engineers would finish a section of breakers, and I would turn off the breaker that the test machine was hooked to, then connect it to another breaker. The leads from the test machine were hooked to the "live" side of the contactor. My boss came by and informed me there would be no overtime, to have my you-know-what in the shop by 4 o'clock.

So, at 3:55 p.m., the engineers caught me going for the door, headed to the shop. One of them called out: "OK, we're done, you can disconnect."

Well, I decided I had better unhook the test machine because the cord was lying across the floor, and it would just be my luck someone would trip over it. Agitated because I knew the boss was waiting for me in the shop, I stalked over to the breaker. The cover was off so I tried to turn the switch, but it wouldn't budge. Finally, I got the switch operating, but then couldn't see if it was "on" or "off", as the linkage covered the front of the breaker.

By now, I was really in a hurry, not to mention really agitated. This was the only time that day I had pulled my safety glasses out of my pocket, as I thought I'd be running into my boss in a few minutes. Since I was going to get a chewing out for working beyond 4 o'clock, I reckoned I didn't need a second one for not wearing my safety glasses. Running out of patience, I reached into the 480-volt AC panel and grabbed the conductor above the contactor and shoved my screwdriver across the two phases hooked to the contactor. What I didn't know was that all day long, the engineers had left it on, but this time they had turned it off, and I had turned it back on! You guessed it -- the leads blew up!

I was instantly and effectively blinded. Ed had heard the explosion and rushed over. He led me to the drinking fountain nearby, and we splashed water over my face and hands till my vision came back and most of the burning had stopped. Due to his quick thinking, I was saved more serious burns which, Heaven forbid, would have resulted in lost time. Ed brought me my glasses, and my eyes really opened up. Dead center in each lens was a chunk of copper.

I was back to work the next day, and you can believe I never left those safety glasses in my pocket again while on the job.

Contributed by Dave Anspach, retired MSHAM/NM Supervisor who lives in Pennsylvania, and is the author of *The Funny Side of Mining*



Humor From the Past

Edited by Melody Bragg, (Bulletin staff writer)

This is a letter written by J.W. Paul, Bureau of Mines, in 1914 to the District Engineers and Car and Station Foremen, concerning the use of chickens in exploration work.

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Pittsburgh, PA.
December 23, 1914

Circular Letter No. 254.3-55

Subject: Use of chickens in exploration work

To all District Engineers and Car and Station Foremen:

On the occasion of the visit of the Bureau of Mines engineers and foreman to a mine on July 6, and again on August 1-7, 1914, following a mine fire which had started June 22 and which had been sealed, a chicken was used to test the quality of the atmosphere in the mine. A lighted safety lamp and a live chicken were placed on the cage and lowered to the bottom of the shaft and allowed to remain for two minutes. When the cage was brought to the surface, the light had been extinguished and the chicken was dead.

After a large part of the mine had been explored by men of the Bureau wearing breathing apparatus, a further test was made with a live chicken and a lighted safety lamp in parts which had not been ventilated, and samples of the air were taken for analysis. During this test the chicken showed signs of distress while the flame of the safety lamp was extinguished before the first sample was taken. The analysis of the two samples of air taken are as follows:

C02	1.9	3.0
Q2	11.7	6.8
C0	0.1	0.1
CH4	25.1	40.1

It will be seen from the above analysis that there was not sufficient carbon monoxide present to overcome the chicken, but the oxygen present was so low that a man breathing the atmosphere would have become unconscious almost immediately. A chicken is therefore not a safe indicator of dangerous mine atmospheres.

Very truly yours,

J.W. PAUL



11th Annual Kansas Mine Rescue Contest

May 26-27, 1999

Team Standings

FINAL STANDING	TEAM NO.	TEAM NAME	CAPT.	DISCOUNTS										AVG. TIME-49		TOTAL DISCOUNTS
				#1 SUR	#1 UG	#2 SUR	#2 UG	#3 SUR	#3 UG	WRITTEN TEST	MAP DISC.	GAS TEST	OVER TIME	WORK TIME		
8	1	HUTCHINSON SALT CO.	CHUCK ELY	0	6	0	0	0	0	47	2	--	3	55	58	
11	2	INDEPENDENT SALT CO.	ED SCHNEIDER	0	30	0	0	0	10	82	1	--	3.5	56	126.5	
1	3	SOLVAY MINERALS, INC.-BLUE	MARK WIGHT	0	0	0	0	0	0	9	0	--	0	37	9	
5	4	THE DOE RUN CO.-MAROON	STEVE SETZER	0	10	0	0	0	0	20	0	--	0	49	30	
10	5	LYONS SALT CO.	ARRON TAYLOR	1	3	2	17	3	2	72	1	--	7.5	64	108.5	
6	6	OCI WYOMING - WHITE	DAVE BULLER	0	0	0	15	0	3	16	1	--	0	46	35	
3	7	WESTINGHOUSE ELECT. (SILVER)	ROBERT RHOADES	0	0	0	0	0	0	17	0	--	0	42	17	
9	8	G-P GYPSUM	MIKE MINIHAN	0	17	0	0	0	0	59	1	--	5	59	82	
7	9	PEA RIDGE IRON ORE. CO.	JIM REED	0	0	0	0	0	4	35	1	--	0	49	40	
4	10	THE DOE RUN CO. - GREY	GARY HENRY	0	0	0	0	0	0	27	2	--	0	43	29	
2	11	GENERAL CHEMICAL - BLACK	MARK TURNBULL	0	0	0	0	0	0	8	1	--	0	42	9	

1st Place - Solvay Minerals (BLUE)
2nd Place - General Chemical (BLACK)
3rd Place - WIPP-Silver

4th Place - The Doe Run Company(GREY)
Long Distance Award - ?
Best Kansas Team - Hutchinson Salt Company

24

Mark your calendar...plan to attend! *Fourth Health and Safety Seminar for Small Mines*

The Ramada Inn in Somerset, PA will be the site of the Fourth Health and Safety Seminar for Small Mines. The seminar is sponsored by The Pennsylvania State University and several government organizations, and will be held on Wednesday, August 18, 1999, from 8:00 a.m. to 4:00 p.m.

The Seminar features timely presentations on a number of small mine health and safety issues, such as safe electrical practices, Part 46 training regulations up-date, slip/trip and fall hazards, fall protection strategies, behavior-based safety, violation history analysis, and improving health compliance. In addition, several exhibitors from government, educational institutions, and industry will display their health and safety material.

The seminar fee of \$30 includes the presentations, refreshment breaks, a buffet lunch, and the proceedings. For more information, please call Mary Ann at The Pennsylvania State University at 814/865-7472 or fax at 814/865-3248.

Registration Form

Last name	First name	Middle initial
-----------	------------	----------------

Title

Business address number and street or box no.

(City)	(State)	(Zip code)
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Business phone	Home phone	Fax
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Home address (number and street or box no.)

(City)	(State)	(Zip code)
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Enclosed is a check for \$ _____ \$30/person for the (Small Mines Seminar) made payable to "The Pennsylvania State University."

Return to:

Mary Ann Sherburne
Staff Assistant
Department of Energy and Geo-Environmental Engineering
The Pennsylvania State University
126A Hosler Building
University Park, PA 16802-5000
814/865-7472-Telephone
814/865-3248-Fax

ANNOUNCING

Under New Management

New bulletin staff takes over...

Dear Faithful and New Readers --

Fred Bigio, editor of the Holmes Safety Association Bulletin since 1990, has recently retired from MSHA. Fred's many contributions to the Bulletin included enhanced computer graphics/layouts and the inclusion of articles and photographs of early mining in the United States. We wish him well in retirement.

We're begging your indulgence and sympathy in making the conversion from a publishing staff of one -- Fred Bigio -- to a staff of seven. Talk about leaving behind some large shoes to fill! We have been stuffing ourselves into Fred's and seem to still have room left over.

First, we want to assure you there will be no other significant changes -- size, basic format, and outstanding caliber of content will remain the same. You also have our promise that all articles, stories, quotes, and announcements will be clear, complete, and easy to read and understand without sacrificing depth or quality. Above all, they will be relevant to your wants and needs.

That doesn't mean we are without ideas. A new feature we're planning is based on the belief that children who learn good safety and health practices at home grow up and bring these good attitudes toward protecting the safety and health of themselves and others to the workplaces. Our future "Children's Page" will include topics to discuss with your children, articles and stories for different reading levels, quizzes, historical facts, mini-mysteries, and pictures for the little ones to color. Of course, these will all be related to safety and health.

Other new features we propose to introduce are a Wellness Forum, humorous accounts of mining life, monthly historical features, and periodic contests to caption a safety cartoon (for all ages).

We need to hear your thoughts and opinions on these proposals, plus any topics or matters you'd like for us to convey in future issues, as well as any features you want us to consider. Feel free to submit your requests, thoughts, opinions, viewpoints, and proposals. (see address, page 26). With your permission, we may print your letter or message in our projected "Letters to the Editor".

And we're still depending on you, our readers, to send us drawings, photos, stories, safety tips, memoirs, historical accounts, articles -- anything on mines, mills, mine workers, equipment, mining communities and towns. Our only criteria are that they be mine related, safety and health oriented, and not copyrighted (unless you can give us written permission). We may have to condense, expand, edit, explain, or polish -- all the things editors do to make themselves happy.

We're proud to be affiliated with the Holmes Safety Association, an organization devoted to protecting and preserving our nation's miners, and we pledge to maintain this tradition of excellence in publications coming to you.

Again, please bear with us in making this transition as seamless and non-traumatic as possible.

***From the new editor and staff of the
Holmes Safety Association Bulletin***

Words to think about...

Man spends his life in reasoning on the past, in complaining of the present, in fearing for the future.

ANTOINE RIVAROL, *late 18th century*

Limited in his nature, infinite in his desires, man is a fallen god who remembers heaven.

LAMRATINE, *1820*

Anger is a better sign of the heart than of the head; it is a breaking out of the disease of honesty.

MARQUESS OF HALIFAX, *late 17th century*

The art of living is more like wrestling than dancing.

MARCUS AURELIUS, *2nd century*

Children begin by loving their parents; as they grow older they judge them; sometimes they forgive them.

OSCAR WILDE, *1891*

It is better to know some of the questions than all of the answers.

JAMES THURBER, *1945*

Courage is resistance to fear, mastery of fear - not absence of fear.

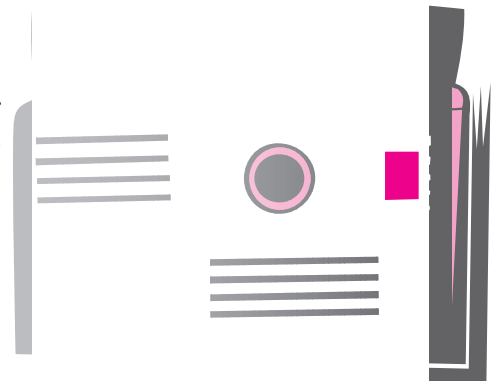
MARK TWAIN, *1894*

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. We **DESPERATELY** need color 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

REMINDER: The District Council Safety Competition for 1999 is underway—please remember that if you are participating this year, 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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*We **DESPERATELY NEED** color photographs (8" x 10" glossy prints are preferred however, color negatives are acceptable—we will make the enlargements) for our covers. We **ALSO NEED** color or black and white photographs of general mining operations—underground or surface. We cannot guarantee that they will be published. If they are, we will credit the contributor(s) within the magazine. All submissions will be returned unless indicated.*

U.S. Department of Labor
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Upcoming events:

- ◆ *July 23, Virginia Governor's Cup Mine Rescue Contest, Claypool Hill, VA*
- ◆ *July 28-29, Coal River - Aracoma, Holmes Safety Association, Madison, WV*
- ◆ *August 3-5, 23rd Annual Rocky Mountain Coal Mine Rescue, Benchman, First Aid and EMT Contest, Price, UT*
- ◆ *August 4-6, Virginia Mining Institute Annual Safety Day, Blacksburg, VA*
- ◆ *August 11-12, 3rd Annual N.M.R.A. Post 5, Mine Rescue, EMT, First Aid, and Bench Contest, Morgantown, WV*
- ◆ *September 21-24, National Mine Rescue, First Aid, EMT and Bench Contest, Louisville, KY*
- ◆ *October 7-8, UMR Mine Rescue Underground Contest, Rolla, MO*

