

Holmes Safety Association
BULLETIN

July/August 1999



Inside:

Be Aware of Mine Hazards

Safety Challenges at Thin Seam Mines



HSA Bulletin July/August 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.

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: Photos of the Empire Mine, Palmer, Michigan, photographer Tom Buchkoe, Marquette, Michigan. 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

Be Aware of Mine Hazards Your Life May Depend On It!

*(Mines and
Minors Don't Mix)*

by Alexis M. Herman,
Secretary of Labor

It's school vacation time again, and kid's thoughts turn from textbooks and term papers to fun and play, including outdoor adventures. Old quarries can become swimming holes on hot summer days; sand and gravel piles look like interesting playgrounds; abandoned mine shafts beckon explorers. But, for the unaware, all three mean danger.

Already this year we have seen two stark reminders that mines and minors don't mix.

In Oklahoma, a 13-year-old girl drowned while swimming with friends in an inactive strip mine. In Maryland, a six-year-old boy playing on a quarry site, plunged more than 100 feet to the bottom of the quarry.

Playing at such sites may seem like harmless fun, but



every year dozens of children and adults are seriously hurt or fatally injured while playing on active and abandoned mine property. These accidents sometimes happen in traditional mining areas like the coal fields of Appalachia and the remote areas of the west. But the threat is anywhere there are active or abandoned quarries, sand and gravel pits, underground mines, or other mining operations.

Surface mines can have dangerous highwalls, undetonated explosives, and other hazards. Old, flooded quarries can have icy temperatures, deceptive depths, and dangerous, undetectable mining equipment just below the water's surface.

Abandoned underground mines often contain decaying timbers, loose rock, and tunnels that can collapse at any time. They may also harbor deadly gases.

Stay Out - Stay Alive is a simple safety message. We want kids to be kids. We want them to create unforgettable memories this summer - away from active or abandoned mines.

MSHA's web page at www.msha.gov features a section on the hazards that unsuspecting children and explorers may encounter at mine sites. Check it out - it could save your life.

Be aware of...
MINE HAZARDS



YOUR

life depends on it!

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



Safety Challenges at Thin Seam Mines

by Barbara Fotta, Robert Peters, and
Launa Mallett

Small underground coal mines have historically experienced higher fatality rates than larger mines (National Academy of Sciences, 1983; Peters and Fotta, 1994). By "small" we mean mines that have fewer than 50 underground employees. Although various ideas have been presented about what factors might be responsible for this difference, researchers have had a difficult time establishing the specific causes. Mine size is highly correlated with seam height. Smaller mines tend to operate in significantly thinner coal seams than large mines. Mining height is usually equal to the height of the coal seam, and can vary from as low as 20 inches to a height of 12 feet or more. Because there are several reasons to expect that differences in mining height are related to differences in injury rates for particular types of accidents, additional statistical analyses have been performed to examine this issue (see Fotta and Mallett, 1997). Of the 90 million hours worked by underground miners at bituminous coal mines in 1996, approximately half were worked in mines with an average seam height of five feet or less.

Additionally, 94% of mines operating in seams of 3.5 feet or less employed fewer than 50 people. Thin seam or low coal mines are located almost exclusively within the Appalachian coal fields. And, in fact, 96% of small thin seam mining operations are located in three states: Kentucky, West Virginia, and Virginia. The proportion of total U.S. underground bituminous coal being produced from thin seam mines appears to have remained constant during recent years. However, as thick seams of underground coal are depleted, one might expect to eventually see a decline in the average height of the U.S. coal seams being mined.

The objective of this article is to continue to identify and quantify the kinds of injuries associated with working in thin seam mining operations. An analysis of these injuries may help us to identify the hazards associated with working in low seam conditions that place miners at greater risk of injury than their counterparts who work in high seam conditions.

Method

Using the mine-level employment and injury data reported to MSHA, mines were stratified

by average coal seam height as low (less than 43 inches), medium (43-60 inches), or high (greater than 60 inches).

To reduce the confounding effects of mining method and mine size on injury rates, mines using longwall mining methods and mines employing an average of 50 or more underground workers were identified and excluded from analysis.¹ During the five year-period from 1992-1996, there were roughly 700 nonlongwall mines in operation that employed fewer than 50 underground miners. While most of these mines used continuous miners in their operations, an estimated 10-15% employed conventional mining methods. These 700 mines accounted for a total of 139 million employee hours, almost half of which were worked in seam heights less than 43 inches. The rates of nonfatal injuries were computed for the five-year period from 1992-1996. Since the number of fatalities per year is much smaller than the number of nonfatal injuries, a seven-year period (1990-1996) was used in computations of fatality rates.

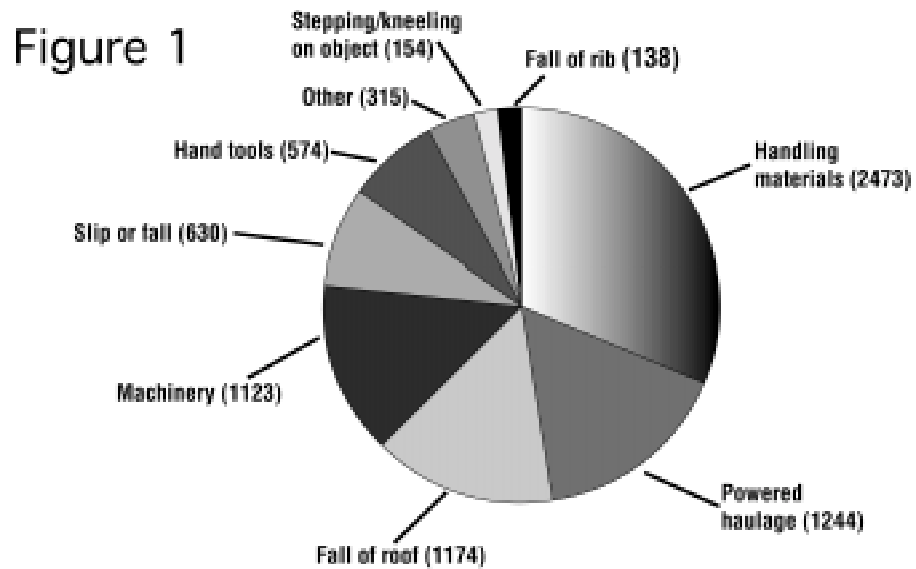
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¹This does not entirely eliminate the confounding effects of mining method. Researchers were unable to identify all mines using conventional mining methods. However, using information from the injury database, 9% of the injuries occurring in low seam mines were associated with conventional mining methods. The corresponding percentages for medium and high seam mines were 3% and 1%. However, limitations to the MSHA employment database did not permit calculation of the corresponding number of hours worked at conventional mines.

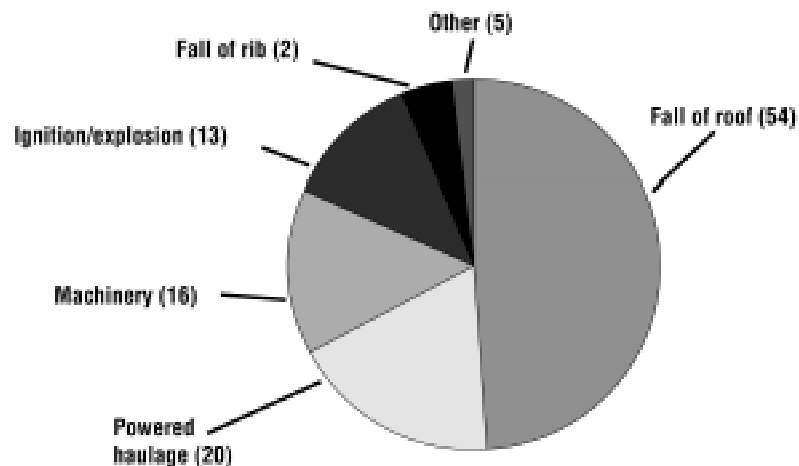
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Results

Figure 1 shows the number of nonfatal and fatal injuries for the major types of accidents. Table 1 gives rates of nonfatal and fatal lost time injuries for each of the three seam height categories.



Number of nonfatal lost time injuries by type of incident, 1992 - 1996



Number of fatal injuries by type of incident, 1990 - 1996

Table 1. Nonfatal injury rates (injuries per 200,000 employee hours) by type of incident and seam height in small underground bituminous coal mines (<50 underground employees)

Incident Type	Nonfatal Lost Time Injury Rates 1992 - 1996			Fatal Injury Rates 1990 - 1996		
	Low seams	Medium seams	High seams	Low seams	Medium seams	High seams
Roof falls	1.45	1.82	2.03	.046	.064	.036
Supported roof	NA ¹	NA	NA	.020	.043	.026
Unsupported roof	NA	NA	NA	.026	.021	.010
Rib falls	.105	.198	.433	—	—	.010
Powered haulage	2.18	1.61	1.14		.027	.010
Personnel carriers	.493	.310	.155	.002	.005	—
Load-haul-dumps	.825	.417	.247	.004	.008	—
Conveyors	.314	.169	.085	.002	.005	.010
Shuttle cars	.345	.582	.541	.008	.008	—
Machinery²	1.62	1.57	1.14	.014	.013	.021
Roof bolting machines	1.18	1.11	.75	.006	.003	—
Continuous miners	.231	.289	.193	.008	.008	.021
Handling materials	3.39	3.87	3.35	—	—	—
Nonpowered hand tools	.871	.772	.803	—	—	—
Slip or fall of person	.625	.921	1.58	—	—	—
Stepping/kneeling on object	.311	.136	.155	—	—	—

¹ Information concerning whether miners were under supported or unsupported roof is not coded in the MSHA database.

² Excludes those injuries resulting from falls of roof or rib during roof bolting or continuous miner operation.



Roof Falls

Rates of nonfatal injuries caused by roof falls increase as seam height increases. Conversely, the rate of fatalities caused by roof falls is lowest in seam heights above 60 inches. One reason fatality rates are higher at lower seam heights may be that MSHA regulations permit mines operating in heights of less than 42 inches to use underground mobile equipment without overhead canopies to protect the operator. Of the 54 miners killed by roof falls in small mines during 1990-1996, seven were operating equipment without a canopy.

Twenty-three of these 54 miners (43%) were under unsupported roof, and 31 were under supported roof. In comparison to seams above 60 inches, the rate of fatalities caused by falls of unsupported roof in lower seams is twice as high. A variety of potential explanations have been suggested to account for this difference (see Holmes Safety Bulletin, December 1994, pp. 4-9). One factor that may be contributing to this difference in fatality rates is that it is more difficult for miners to get

a good look at the roof when crawling or stoop walking as opposed to standing in an upright posture. There appears to be no relation to seam height for fatalities caused by falls of supported roof.

Rib Falls

As expected, the rate of nonfatal injuries caused by rib falls increases substantially as mining height (and the height of the rib) increases. The two fatalities resulting from falls of rib both occurred in high seam mines.

Powered Haulage

The rate of nonfatal injuries associated with powered haulage decreases substantially as seam height increases. This trend is particularly evident for



the rates of nonfatal injuries involving personnel carriers (such as mantrips), load-haul-dumps (mostly scoops), and conveyors (includes mobile bridges). One reason the rate of injuries involving shuttle cars is actually lower in thin seam mines may be the proportionately fewer shuttle cars are used in low seam mines as compared to medium or high seam mines. Continuous

haulage systems and battery powered scoops tend to be used in place of shuttle cars in thin seam conditions. Although a consistently decreasing trend is not observed across seam height for the rates of fatal injuries, the lowest rates consistently occur in high seams. And, in fact, of the 20 miners killed in powered haulage incidents, only two were in high seams.

A contributing factor to the higher rates of injuries observed in low and medium seams involving powered haulage incidents is the low clearance of the mine roof. As the mining height decreases, the mine roof or top, as well as installed roof bolts and plates, become additional sources of injury to the miner. Necks, backs, heads, and shoulders are the body parts most frequently injured when miners contact the mine roof. Of the 210 incidents in which the source of injury was reported to be the mine roof, 32% involved load-haul-dumps, 19% involved shuttle cars. According to the accident narratives, these miners were injured when they hit a bump, hole, or rock on the mine bottom, causing them to be thrown into the roof. In medium seam heights, miners are similarly injured when they are thrown up into the protective canopy on the equipment they are operating. Another factor that may contrib

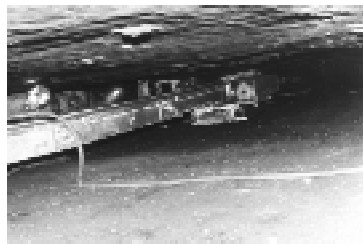
ute to injuries caused by powered haulage in low seams is the operator's restricted field of vision. Due to the low profile design of equipment used in thin seams, the operator is often in an almost fully reclined posture while driving mobile equipment.

Machinery

The rates of nonfatal injuries involving machinery incidents are higher in low and medium seams than in high seams. This trend persists for incidents involving roof bolting operations, which accounted for 71% of machinery nonfatal incidents and four of the 16 fatal machinery incidents. All four fatal incidents occurred in low or medium seams. Additional information about injuries involving roof bolting operations can be obtained by looking at the actual source of the injury. For nonfatal injuries, the specific source of the injury is coded as the mining machine itself at twice the rate in low seams as in high seams. All four fatalities resulted from crushing injuries involving the roof bolting machine. An additional source of nonfatal injuries is roof bolts. The rate of injuries involving roof bolts is four times higher in low seams than in high seams. One reason that injuries involving bolts are more prevalent in low coal seams may be that miners frequently must bend and unbend roof bolts in order to

install them into the roof. Incidents involving continuous mining machines accounted for only 16% of nonfatal injuries but 70% of the fatal injuries. Seam height does not appear to be related to the rate of injuries associated with continuous mining machines.

Handling Materials



The highest rate of nonfatal injuries is associated with the "handling materials" accident category. Most of these injuries involve musculoskeletal sprains or strains, particularly of the back. The rate of injuries does not appear to vary much with seam height. The highest rate is found in the medium seam height category. Medium seams also have the highest rates of back injuries overall, the highest rates of injuries resulting in strains or sprains, and the highest rates of injuries resulting from all types of overexertion (lifting objects, pulling or pushing objects, wielding or throwing objects). This may reflect the fact that miners in 43- to 60-inch seams cannot stand fully erect when lifting and transporting materials, and they may experience difficulty in using their leg muscles to do so much of the lifting. Additionally, these

miners are often stressing their backs with continual stooping and duck walking.

Nonpowered Hand Tools

Rates of injuries resulting from incidents involving nonpowered hand tools do not vary substantially with changes in seam height.

Slips and Falls

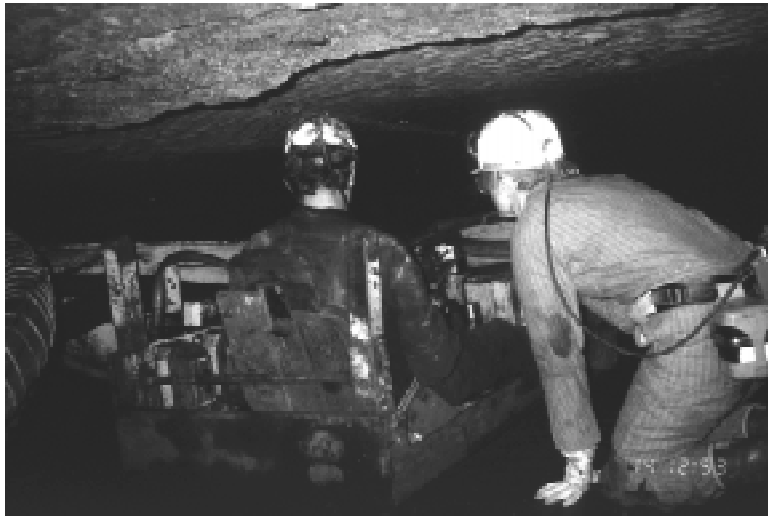
As expected, the rates of injuries due to slips or falls increase substantially as seam height increases.

Stepping or Kneeling on Object

The rates of injuries due to stepping or kneeling on an object are substantially higher in low seams than in either medium or high seams. The activity of the miner is usually described as crawling or kneeling at the time of the injury. As expected, rates of injuries to miners while crawling or kneeling were strongly related to seam height. The rate is ten times higher in low seams than in high seams. About 75% of these injuries were to the knee. Articles on miners' knee disorders have been published in the research and medical literature for many years (Bruchal, 1995). Miners in low seam conditions often work on hard and uneven surfaces, pushing their joints to extreme ranges of motion with static stress.

(Continued next page)

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Prolonged kneeling can adversely affect the skin, bursae, and knee joints, resulting in cuts and scrapes, bursitis, laxity of the knee joint, or torn menisci. As expected, when the rates of knee injuries for different seam height categories were compared, substantial differences were found. Overall, rates of knee injuries decreased as seam height increased. About 23% of the knee injuries in low seams were the result of crawling or working on the knees for extended periods of time. This percentage dropped to 9% in medium seams and less than 5% in high seams.

Conclusions

The working height of an underground coal mine can directly affect safety in a number of ways. As the working height decreases to the extent that miners must stoop, duck walk, or crawl, the miners' vision, posture, and mobility become increasingly restricted. The physical de-

mands placed on the miner generally increase as seam height is reduced. Additionally, as mining height decreases, the mine roof increasingly becomes an additional source of injury to the miner. Although equipment is sized proportionally for thinner coal seams, the height restriction makes it infeasible to use protective canopies. It also puts limitations on the placement of operator compartments, which affects what and how much an operator can see while in the cab. Lower mining heights can also make tasks more difficult to perform, such as requiring a roof bolter



operator the added effort of bending and unbending roof bolts in order to insert them into the mine roof. A safety

concern at medium seam operations is posture. Miners working at these heights cannot lift using the traditionally advocated safe lifting procedures based on unrestricted height. Laboratory studies of the effects of lifting materials using different postures (e.g., kneeling, stooping, etc.) suggest that working heights in the 48- to 72-inch range are more stressful on the back than working heights which require a person to remain kneeling or which allow a person to stand (Gallagher et al. 1995). Reduced mobility is another concern in lower seam heights. Miners who must duck walk or crawl from place to place within their work area may be moving more slowly and with greater expenditure of energy than miners who are free to walk upright. It appears that visibility, limits to mobility, and posture restrictions may all affect miners' safety. However, further investigations are needed to gain a better understanding of the exact processes by which low seam height contributes to injuries, and to identify better strategies for injury prevention in this very challenging work environment.

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Human factors research has been performed to try to address some of the hazards associated with working in low seam mines. Studies have been performed on the following:

- *Personal protective equipment (e.g., knee pads, gloves, reflectorized outer garments)*
- *Design recommendations for underground mobile equipment operator compartments*
- *Recommendations for the design of controls on roof bolting machines*
- *Procedure for bending bolts in low coal*
- *Recommendations for keeping miners away from unsupported roof*
- *Preventing back injuries*
- *Various materials handling devices and procedures*



- *Recommendations for improving the maintainability design of underground equipment*
- *Software for evaluating the adequacy of the equipment operator's field of vision, given the size of the operator and various dimensions of the operator's compartment*
- *Reduction of shocks and jolts through the incorporation of viscoelastic foams and other features to improve shuttle car seating*

Please contact the authors if you would like more information about these topics. □

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Kentucky Mine Safety Conference Held

by Ron Sullivan, Safety Associates, Inc.

The second annual Kentucky Mine Safety Conference was held in Pikeville, Kentucky, April 21-23, 1999. There were more than 300 in attendance



Left to right:
Jim Stephens,
Pres. of Safety
Assoc., Inc.
John L. Franklin,
Commissioner of
KY Dept. of Mines
and Minerals
Tracy Stumbo,
Chief Inspec., KY
Dept. of Mines
and Minerals

and all reports indicate that the conference was a big success.

Some of the featured speakers were: The Honorable Governor of Kentucky, Paul E. Patton; Congressman Hal Rogers from Kentucky's 5th District; Richard Lawson, President and CEO of the National Mining Association; and John L. Franklin, Commissioner of the Kentucky Department of Mines and Minerals.

The agenda for the two-day conference included a variety of events such as a golf tournament, a pre-shift examination contest, an EMT contest, an awards banquet, and entertainment by members of the Kentucky Opry.

As it was last year, one of the highlights of the conference was the exhibit hall where a large number of vendors

displayed equipment, products, and services of interest to the mining industry. One of the new exhibitors this year was Safety Associates, Inc., who has developed a full eight hour annual refresher training program exclusively for coal truck drivers (see the January 1999 issue of Holmes Safety Association Bulletin, page 12). In his address to the convention, Commissioner Franklin called the coal truck drivers' safety training a "very, very good program" and urged the attendees to visit the Safety Associates exhibit.



Everyone interested in mine safety should plan to attend next year's conference. Watch the HSA Bulletin for the exact date and make your reservations early. □



State Grants Meetings

The State Grants program managers will be available throughout the National Mine Instructors conference to meet one-on-one with state grants recipients to discuss any issues related to the grants. These meetings will be scheduled for one hour on a first-come-first-served basis. A sign-up sheet will be posted for those interested.

Holmes Safety Association Meeting

The Executive Board of the Holmes Safety Association will meet at 3:00 P.M. on Thursday, October 14, at the National Mine Health and Safety Academy, Beaver, WV.

Commissioner
John L. Franklin
addressing the
Mine Safety
Conference.

Pre-shift Examination Contests

by Tracy Stumbo, Chief Accident Investigator, KY Dept. of Mines and Minerals
Photos by Wayne Collett, KY Dept. of Mines and Minerals

What is a pre-shift examination contest and what happens there?

The purpose of a pre-shift examination is to identify hazardous conditions in the mine.

Without a doubt, mine rescue and mine emergency technician teams are necessary and are to be commended for their work. However, these two groups are put into action after an accident occurs. Wouldn't it benefit everyone - companies, labor, and regulatory agencies - if more emphasis were placed on prevention?

Studies of accident reports show that an adequate pre-shift examination detects and eliminates many hazardous conditions that contribute to injuries, fires, and explosions. Although state and federal laws require pre-shift examinations, unfortunately, some coal companies do not always take the exams seriously. With mining companies, labor, and regulatory agencies working together to promote the idea that an adequate pre-shift examination will eliminate

hazardous conditions, the result will be a safer working place. And a safer working place should result in less need for mine rescue and recovery work. Pre-shift contests can be useful tools for training and teaching pre-shift examiners, and truly promote mine safety by giving contestants practice in identifying and eliminating hazardous conditions. The contests give recognition to examiners who perform this vital task. Hopefully, the pre-

situation, and is given 20 minutes to complete the test.

The field problem is laid out similar to a mine rescue field. The field usually consists of three entries and three cross-cuts. The problem designer places several hazardous conditions in "the mine." Each contestant accumulates points based on his ability to locate



shift contests will inspire examiners to do a thorough and professional examination.

A typical contest consists of three parts: a written test, the field problem, and completion



of the pre-shift book. Twenty-five written questions test each of the contestant's knowledge of pre-shift function and mine safety law. Each contestant takes the test in a lock-up



and eliminate the hazardous conditions.

If the "hazardous conditions" cannot be eliminated while the participant is in the mine, the contestant is awarded points for "dangling off" the area. Each contestant also accumulates points for accuracy and thoroughness in completing the pre-shift book.

For further information contact:
Johnny Greene, Kentucky
Department of Mines and Minerals,
P.O. Box 851, Hazard, KY 41701,
Phone: 606/435-6079

Working the field problem

Contestant taking a reading

Contestant with field judges

Contestant using his meter

wellness



Sunscreen Protects Outdoor Workers

by Brad Bierman

Employers are becoming increasingly aware of the dangers to outdoor workers of unprotected sun exposure. Perceptions of the sun's healthy benefits are being discarded with the knowledge of the relationship between the sun's ultraviolet radiation and the epidemic increase in skin cancer. It now appears that the sun has the potential for being one of the worst enemies of outdoor workers. The American Academy of Dermatology expects reported skin cancer to top 1.2 million this year. At greatest risk? Outdoor workers.

Mounting research suggests thinning of the ozone layer as a prime contributor. Little by little, at a rate estimated at 7 to 10% every 10 years, the ozone

is thinning and allowing more and more ultraviolet radiation to penetrate to the earth's surface. The earth's natural sunscreen, which once protected outdoor workers, has been significantly diminished.

The problem is apparent and well documented: Unprotected exposure to ultraviolet radiation from the sun is hazardous to outdoor workers.

The solution: Take proactive measures to educate and protect those affected.

As part of a total program of protection, employers should provide sunscreen in the same way they provide hearing and eye protection. Mount a sunscreen dispenser in a strategic location with an accompanying warning sign. This makes good health sense and business sense, and avoids potential serious problems down the road.

When selecting a sunscreen product, order a good "professional" sunscreen that is designed for outdoor workers, not the kind of sunscreen used at the beach to get a golden tan. After all, a tan means that the skin has been damaged. And, the "recreational" sunscreens are normally greasy and/or sticky; not so with the professional sunscreens. The sunscreen should be an SPF 25 or 30. Anything higher than SPF 30 provides negligible additional protection and greatly increases chances for an allergic reaction.

Additional suggestions for protecting workers include

selecting clothing that has a tight weave. Blue jeans are ideal. Suggest a shirt that when held up to the light, can't be seen through. There are specially treated SPF rated clothing items that have been tested to protect the wearer from ultraviolet for workers that want to go a step further. Cover as much skin as possible: wear long sleeve shirts, gloves, hats with a 4" brim and a flap that covers the neck, long trousers, and sunglasses that block 100% of UVA/UVB rays.

Outdoor workers will find it hard to stay out of the sun from 10:00 A.M. through 3:00 P.M., as most doctors recommend. When possible, they should work in the shade during these hours. If riding equipment, the worker should find out if the manufacturer offers a sun shield.

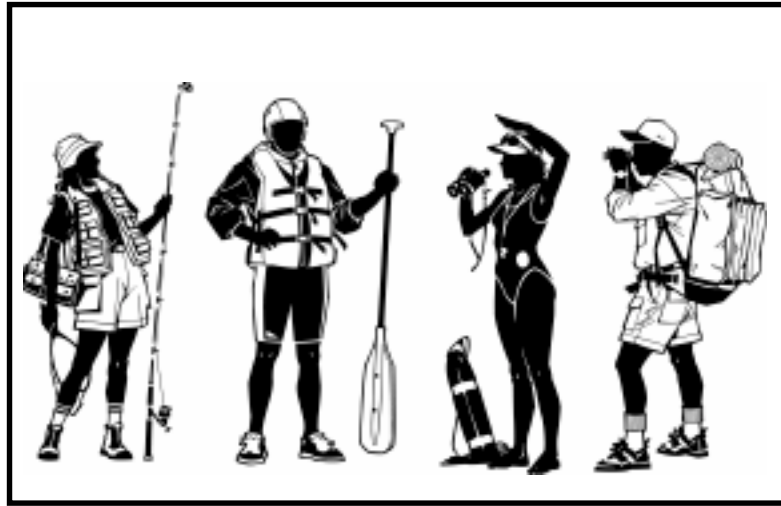
Remember, sun damage may occur in as little as five years of cumulative exposure and may not give any advance warnings of the problems to come.

For additional information on sun protection, contact the American Academy of Dermatology, 847/330-0230.

For information on the sunscreen, contact SmartShield Sunscreens for a "Practice SafeSun" kit, 3311 Oak Lawn Ave., Suite 200, Dallas, TX 75219, 800/343-1504, Fax: 800/431-1568, or E-mail: srl@dallas.net.

Reprinted from the May 1998 issue of the Rimbach Publishing Co.'s **Industrial Hygiene News**

Playing it safe in the great outdoors



Now that summer is here and school is out, your children will be spending more time outdoors. To help ensure their playtime safety, keep the following in mind.

Playground hazards

In 1991, some 250,000 children were hurt in playground accidents. Before letting your children play at an unfamiliar playground:

- ❑ Check for energy absorbing material—wood chips, sand, or rubber matting—under playground equipment.
- ❑ Make sure swings and equipment are firmly anchored below ground level and located at least six feet from the nearest fence, tree, or other object.
- ❑ Look for protruding bolts on jungle gyms, seesaws, and slides.

Bikes, skates, and skateboards

More children are injured in biking, skating, and skateboarding accidents than in any other outdoor activity. Take these safety precautions:

- ❑ Every skater and skateboarder should wear a helmet approved by the Snell Memorial Foundation or the American National Standards Institute (ANSI). Knees, elbows, wrists, and hands also should be shielded with protective gear. Children ages 5 and under are usually too small to safely ride a skateboard.
- ❑ Every bike rider should wear a helmet and follow traffic rules.
- ❑ Make sure your child has the right size bike. When the youngster sits on the seat with hands on the handlebar, the balls of both the child's feet should touch the ground.

Preventing lawn mower accidents

More than 4,700 children are injured in lawn mower related accidents each year. These safety tips can reduce the dangers:

- ❑ Before mowing, clear away rocks, gravel, and other objects that could be thrown by the blades.
- ❑ Don't give children mower rides. The risk of a child falling off a mower and under the blades is too great.
- ❑ Keep children under age 5 indoors while you mow. Keep older children at a distance.
- ❑ Don't be in a hurry to let your older children mow. Youngsters should be at least 12 years of age before operating a standard mower; at least 14 before using a riding mower. Be sure your riding mower has a shut-off switch

(Continued on page 20)

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Lowell Thomas Broadcasts From Deep Inside Whipple Mine

by Melody Bragg

It was 1934 and America was in the midst of a nationwide love affair with radio. An era was dawning when listeners could learn of news that was only moments old. Radio granted its audience a mental magic carpet to transport their imagination to places they knew their eyes would never see.

Among the most famous of these mental wizards was newsman Lowell Thomas. His flair for description and impressive voice made him one of the most popular broadcasters of his day. He had a talent for the sensational and often thrilled his listeners by taking his broadcast to new and exciting places. Through the eyes of Thomas, listeners were given vicarious view of a world of amazing variety.

In May 1934, Thomas took his American listeners to a place which, although it was familiar to thousands, was both frightening and fascinating to those unfamiliar with it. Thomas announced that on May 31, 1934, he would make his famous national broadcast from 600 feet below the surface inside the Whipple Mine in Fayette County, West Virginia.

The announcement brought excitement to listeners and to the communities surrounding the mine. Fayette County was

extremely proud of the Whipple operation which averaged 1,800 tons of coal daily that was shipped to 21 states and abroad. One fact which especially impressed Thomas was the enormous amount of water

present in the mine. Five pumps on the surface worked constantly to pipe water through miles of mountain and out of the mine shaft.

Lowell arrived early on the day of the broadcast to enable him to spend several hours in preparation. He was accompanied by several guests who were eager to share in this latest adventure. Included in the list of guests were two young boys and two women

who were convinced that a trip down a mine shaft would be the adventure of a lifetime.

When time for the broadcast neared, Thomas and his companions traveled to the Whipple Mine and prepared to

mount the "cage" that would lower them 600 feet below the ground. However, plans had to be changed at the last minute. Officials informed Thomas that his two female companions would not be allowed to join



him underground. Miners were superstitious about the presence of women in the mines, and even the influence of one as famous as Lowell Thomas was not enough to make them take any chances.

Lowell Thomas broadcasting live underground in Whipple Mine, 1934

**Lowell Thomas
Broadcast
(Continued)**

Upon reaching the bottom of the shaft, Thomas and his eager spectators entered the room that was to serve as his underground broadcasting station. Two technicians were already present, one operating a telegraph and the other with a telephone, poised and ready. A microphone stood waiting for the famous broadcaster to begin.

At exactly 5:45 P.M., the voice of Lowell Thomas poured out to the world from 600 feet below the surface in the Whipple Mine. It was a landmark performance and marked the first time a radio broadcast had been attempted successfully from the interior of a working underground coal mine.

After discussing the big news of the day regarding a presidential review of the naval fleet, Thomas began to share his impressions of the underground world with listeners.

Following are excerpts from his broadcast:

"I certainly am just as far from nautical festivities tonight as it's possible to get. Tonight was the night that I was going to try to broadcast from the bottom of a coal mine and that's where I am at this moment - 600 feet underground in the Whipple Mine of the White Oak Coal Company, near Mount Hope, in the heart of West Virginia, 70 miles east of Charleston. Miners call it

being 'down in the hole', but then I'm used to being in the hole.

"I can't help reflecting on that moody contrast, this subterranean mine here, way down in the darkness and depth of the earth and that gala oceanic spectacle in New York today, our high seas fleet on parade. All around me are tunnels - 50 miles of them - from which coal is brought from distant parts of this mine by small electric trains, 1,800 tons of it a day. But to keep it dry down here, four times as much water must be taken out of the mine each day - 8,000 tons of water and 1,800 tons of coal.

"The ventilation seems okay, in fact, better than in many broadcasting studios I've known. A gigantic steel fan circulates 100,000 cubic feet of fresh air through the mine per minute.

"And to make it as safe as possible, nonflammable power is used for shooting down the coal; miners use electric lamps on their fiber helmets instead of the old-time carbide flame; and white rock dust is spread all around, nonexplosive rock dust, to keep that terrible black coal dust from exploding and blowing up the place, as used to happen so often. Safety seems to be the watch word of these mines.

"The coal is hoisted up this shaft to that framework which they call the tippie, and they wash it all off to make it clean as possible and spray it with

Sun Oil 'Coalkote', which further keeps some of the dust down and is a great help to those who consume coal.

"So, it's down here in the black mine that the coal miners labor in the underground depths while up there in the harbor of New York are the splendid fighting ships swept by salt breezes of the sea.

"And now for some news from the close, confined depths of this subterranean pit, down here in the darkness of this black coal mine, where there are so many electric lights that it's almost light as day. Let's take a look at the wide open spaces of the west. The word from the west is dry, very dry, drought and more drought.

"This situation beyond the Mississippi has grown so serious that cattle are starving by the thousands. This terrific drought is putting hundreds of thousands of farmers in the hole. Not only the grain growers but the livestock raisers. They are now in a hole so deep that the government is getting busy to relieve the situation.

"The farmers out there are having to cope also with a plague of grasshoppers. The better part of six states are afflicted with these pests. Apparently, no relief is in sight, except government relief and also railroad relief.

"Governor Horner of Illinois has appealed to the railroads to cut down on their freight rates on grain, so as to help the growers. The plight of the farmer in the dry regions may

make these coal miners around me more content with their lot..

“Way back in March, General H.S. Johnson of the NRA issued this warning: ‘Raise wages and cut down hours or strikes will sweep the country.’ Let’s see how good a prophet the general was.

“The shipping industry is at a standstill. In New England and in the South, the men in the textile industries are still threatening to walk out. The situation in the steel industry is still deadlocked. In northern Ohio, it is the electrical industry.

“An article from this week’s ‘Nation’ declares that the signal for a general strike in northern Ohio may be given tomorrow night. The unions have called for a great torchlight parade and mass meeting. However, we should remember that pretty much the same thing happened in 1921. In that year, the whole country was swept by labor troubles, but we recovered and good harvest years followed. Maybe we’re not much in the hole after all.

“Sam Scott, one the best known figures in the coal mining world, is sitting beside me. Mr. Scott, are things any better in the mine, so far as both miners and employers are concerned?” Mr. Scott replied, “We’ve had our difficulties too, but for the time being, they seem to be ironed out. Anyhow, from down here in the mine everything seems to be looking up.”

Thomas continued, “Here’s a curious thing in connection with this mine broadcast that may give you a chuckle. Do you remember when aviators were superstitious about flowers and wouldn’t take flowers with them in a plane? Well, coal miners have their pet superstitions too.

“I brought a couple of 10-year-old boys along today to give them a thrill, and two ladies - one of them a leading businesswoman of the Shenandoah Valley - business manager and part owner of two daily newspapers in Staunton, Mrs. C. K. Brown.

“Oh, but women are not allowed in the coal mines! If a woman goes into one, and the miners know about it, some of them, often all of them, will refuse to work the next day. In some cases, they refuse to go back to work for a week or so - until the evil spell has worn off, I suppose.

“So the ladies came a couple of hundred miles in vain, and they are now looking down inside in vain. This is a man’s world down here at the bottom of Whipple mine. The reason for this superstition, I understand, is that whenever a woman visits a coal mine, something terrible happens soon afterward. And usually that something is an explosion.

“Yes, and women will cause explosions in the NBC control room in New York City if I don’t hurry up and say - So long until tomorrow!”

Following a banquet in his honor, Lowell Thomas left the coal fields in search of new adventures, and the landmark underground broadcast was declared a tremendous success. Thomas had dared to travel deep underground where 360 men made their living every day and for a few short moments, the imagination of America went with him. □

Fighting Mine Drainage, PA’s No. 1 Source of Water Pollution

Slippery Rock Creek is something of a success story in the continuing fight against Pennsylvania’s No. 1 source of water pollution, the rust-colored acid runoff from abandoned mines.

Two environmental groups in Butler County, working with the state and mining companies, have installed six drainage systems to clean up the water flowing from abandoned mines into Slippery Rock Creek. It’s just a start, really, but they’re already seeing progress.

“That creek, it was also lutely polluted, dead water. Now it has trout in it,” said John C. Oliver 3d, secretary of Pennsylvania’s Department of Conservation and Natural Resources.

(Continued page 25)

What's happening at the...

National Mine Health and Safety Academy

Conferences/Seminars

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

Some of the topics to be covered are: Innovative Instructional Techniques; Instructional Technology and Computer Applications; Underground Mine Safety (MNM and Coal); plus others.

To enroll in the Conference/Seminar, please return the enrollment form on page 23. You can either mail the form or fax it to 304/256-3251.

Videos:

The following videos have been produced and are available from the Academy for \$8.00 each.

Harvey Roles I (MNM)

A hazard recognition and first aid training video. It depicts a contractor arriving at a surface mine to do some work. The lack of proper hazard training, in addition to his preoccupation while driving, ultimately contributes to a near fatal accident. This video comes with an 8-page guide. (Cat. No. VC 921, 13 minutes)

Harvey Roles II (C)

A first aid training video featuring a review of the fundamentals of rescue techniques following an electrocution. This video comes with an 8-page guide. (Cat. No. VC 922, 13 minutes)

Locating and Rescue of Trapped Miners (C/MNM)

Describes the equipment and methods used to locate trapped miners in an underground mine environment. (Cat. No. VC 927, 18 minutes)

MERD - Mock Disaster (C)

Documents a simulated mine emergency problem held in an active mine with seven mine rescue teams participating. (Cat. No. VC 926, 17 minutes)

Safety on or Near the Water (MNM)

Discusses the hazards of working on or near the water and the precautions that need to be taken to protect the workers in this situation. (Cat. No. VC 925, 14 minutes)

Silicosis: A Preventable Disease (MNM)

An employee's questions about the health effects of silica dust exposure are answered. (Cat. No. VC 929, 19 minutes)

Stay Alert and Stay Alive (Truck Accident Awareness) (C)

Covers the tragic death of one truck driver and the effects of his death on his family. Also covers some safety driving practices. (Cat. No. VC 860, 11 minutes)

Publications:

There is no charge for the following new publications.

Fatal Accidents Involving Contractors at Coal and Metal/Nonmetal Mines, 1996-1997

Presents statistics, abstracts, and illustrations on fatalities involving contractors that occurred in coal and metal/nonmetal operations from January 1996 through December 1997. (Cat. No. OT 37)

Fatal Accidents Involving Conveyors at Coal and Metal/Nonmetal Mines, 1990-1998

Presents statistics, abstracts, and illustrations on the fatalities that occurred at coal and metal/nonmetal operations from January 1990 through April 1998. (Cat. No. OT 40)

Fatal Accidents Involving Drowning at Coal and Metal/Nonmetal Mines, 1996-1997

Presents statistics, abstracts, and illustrations on fatalities involving drownings that occurred at coal and metal/nonmetal mining operations from January 1996 through December 1997. (Cat. No. OT 34)



Surface Haulage Safety Seminar

The Mine Safety and Health Administration sponsored a three-day seminar on Surface Haulage Safety, August 17-19, at the Mine Health and Safety Academy, Beckley, West Virginia. This seminar was for the mining industry, related support groups, mining regulatory agencies, and others that are involved with the safety, planning, design, and application of mine construction and maintenance activities.

Topics that were covered at the conference:

- How to Save Money on Repairs
- End Loaders—Steering Transmission Integrated Control (STIC)
- Conveyor Systems Safety
- Electric Drive Off-Highway Haulage Trucks
- Causes of Crane Accidents and Lift Concepts
- Independent Contractors
- Dump Point and Surge Pile Safety
- Application of Technology to Earth Moving Equipment and Its Effect on the Environment
- Haulroads—Keys to Accident Prevention
- Safe Truck Operation
- Large Wheel Loaders
- A Preview of WV Surface Haulage Accidents
- Computerized Dashes—VIMS (Vital Information Management System)
- Off-Road Tire Basics and Care and Maintenance
- DOT Procedures/Regulations—Truck Inspections
- Safety Aspects of Mounting/Dismounting Tires
- Heavy Equipment Safety
- Vehicle Fire Suppression Systems
- Safety Features of MI Series Trucks
- Safe Dump Trailer Operation
- Trucking Safety—Bottom Line Results
- Use of Cameras on Blind Spots
- Computerized Haulage Training Simulators
- Vision Technology in Haulage and Mining

If you have questions about the seminar, please contact Johnny Tyler at 304/256-3541. □

Preventing lawn mower accidents (Continued from page 15)

that automatically stops the blades from spinning without a driver in the seat.

Poolside precautions

Every year in the United States, some 3,000 children under age 5 drown or nearly drown. Take these safety precautions:

□ If you have a backyard pool, learn Cardiopulmonary Resuscitation (CPR). Contact the American Red Cross or your local hospital or fire department for CPR courses.

□ Erect a fence around the pool. Gates and latches shouldn't be operable by a child.

□ Never allow a child (even a very good swimmer) to swim unsupervised.

□ Supervise all diving.

When swimming in a body of water they're not familiar with, have your children follow this maxim: "Feet first, first time."

Primary sources: National Safety Council, Chicago, IL; The American Academy of Pediatrics, Elk Grove Village, IL

First Aid Training Pays!

by Carolyn Bald

Our hard Rock Pile Mine is a family owned and operated sand and gravel operation. Our home is located on the same property. Although we are a small operation with only three employees, we adhere to MSHA regulations and take all the safety training very seriously. When going through the training courses, people often wonder if they will ever use what they are learning, or if they could remember what to do if it was a loved one.

On August 11, 1998, that question was answered for me. I was working in the maintenance building area when I heard someone screaming. I looked toward the driveway that leads up the hill to our home site and saw no one. I could not understand the words screamed or determine where they were coming from.

A moment later I saw my mother coming down the hill cross-country, covered with blood, with what appeared from a distance to be an arrow in the right side of her head. As she came closer, I could see it was a large knife. I could not tell if there were other wounds at that point. By the time I crossed the yard she had reached the bottom of the hill. She told me someone was in the house and had attacked her with steak knives and a butcher

knife. We went directly back to the maintenance building where the first aid bag was stationed just inside the door, along with a telephone. I immediately had her take her left hand and apply pressure to the carotid artery to help slow the flow of blood from her head wounds. We both knew not to remove an imbedded object from the wound. With one hand, I applied pressure to a large gash running from her forehead to the crown of her head using sterile packing. With the other hand, I dialed 911 for assistance.

By the time the ambulance arrived, we had the bleeding stopped. I was able to assist the EMTs when they arrived and accompanied my mother in the ambulance, still applying pressure to the wound. I was able to converse with her, helping to keep her calm. She was transported to a Public Health hospital where she was readied to be airlifted to a trauma unit in Albuquerque, NM.

Throughout this event I was able to remain with my mother,

often helping with procedures, giving her much needed support, and attending to all necessary paperwork. Twelve hours had elapsed by the time the butcher knife was surgically removed. At no time did I ever panic or lose my concentration throughout that long night. The surgeons complemented the fact that everything had been done exactly correct, making their job easier, and probably saving her life.

Thanks to the training I had received, the complete medical first aid bag I had put together, and a calm approach to the emergency, my mother is recovering well. I will never wonder again if I would panic in a real emergency especially if it were a loved one. I am very grateful for that safety course.

*Submitted to the bulletin by
Carolyn Bald HC 33, Box 37
Gallup, NM 87301-9701
Phone: 505/371-5786*



22

Mining Our History *An Overview of Disaster* *Anniversaries*

by Melody Bragg

85 Years Ago

Inrush of Water

Balkan Mine
Palatka, MI
July 14, 1914

Seven men lose their lives when an inrush of sand and water flood this iron mine. Five others escape unharmed.

80 Years Ago

Ignition of Gas

Lansford Mine
Lansford, PA
July 8, 1919

A large quantity of gas liberated by the firing of shots in this anthracite mine is ignited. Eight men on the gangway are killed and three others are injured. Cause of the blast is believed to be smoking or some other open light.

Ignition of Gas

Carswell No. 3 Mine
Kimball, WV
July 18, 1919

Gas is ignited when a mine foreman strikes a match while attempting to relight his lamp.

Intensified by coal dust, the blast travels through the shaft and six miners lose their lives.

75 Years Ago

Ignition of Gas

Gates No. 1 Mine
Brownsville, PA
July 25, 1924

A fall in an unventilated, robbed-out section pushes gas into live workings, where it is ignited by arcing of machine cable nips. The explosion is intensified by coal dust. Ten men in the area are killed - six by violence and heat and four by afterdamp.

60 Years Ago

Explosives

Duvin Mine
Providence, KY
July 14, 1939

Explosives are ignited by the contact of wires with rails or the poorly insulated cables of a cutting machine. Inadequate rock dusting allows coal dust to be ignited by the blast. Twenty-eight men in the explosion area are killed.

55 Years Ago

Ignition of Gas

Brilliant No. 2 Mine
Brilliant, NM
July 28, 1944

Six men lose their lives when removal of a stopping short-circuits the ventilation and gas accumulates. The gas is ignited by an arc from the controller of a locomotive.

Mine Fire

Powhatan Mine
Powhatan Point, OH
July 5, 1944

A fire occurs when a roof fall causes a trolley wire to pull loose and ignite the coal. Sixty-six of the 190 men working in the mine are trapped in by the fire and killed. Sixty of the 66 men killed barricaded themselves underground. Another attempted a barricade but was overcome. The five remaining men apparently attempted to get around the fire and were in an area of the mine that was sealed.

Registration Form

Complete registration, detach, fold, tape or staple and return by September 30, 1999

TRAM/INSTRUCTOR SEMINAR REGISTRATION

October 12-14, 1999

(Please return by September 30, 1999)

Name _____

Position _____

Organization _____

Address _____

City _____ State _____ Zip Code _____

Telephone: _____ Fax: _____

(include area code)

(include area code)

Do you desire lodging at the Academy? Yes _____ No _____

Roommate preference: _____

Confirmation will be mailed or faxed back to you.

Confirmed by: _____ Date _____

Return Address

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MINE SAFETY AND HEALTH ADMINISTRATIONÄ
NATIONAL MINE HEALTH AND SAFETY ACADEMYÄ
ATTENTION: STUDENT SERVICESÄ
1301 AIRPORT ROADÄ
BEAVER WV 25813-9426Ä**

Fold on line/staple at top

Fighting Mine Drainage, PA's No. 1 Source of Water Pollution

(Continued from page 18)

At the first statewide conference on mine drainage, local environmental groups, mining executives and government officials swapped business cards and ideas, hoping to come up with more success stories that, like Slippery Rock's, rely on local work.

"It just generates ideas. You get to meet people who are doing different things," said geologist Margaret Dunn, who runs the consulting firm BioMost Inc. and worked with the Slippery Rock Watershed Coalition to turn around the sullied creek.

About 2,500 miles of Pennsylvania streams are polluted by mine drainage, according to the state. The cost to clean it all up: about \$3.3 billion.

The expensive way to do it is to treat the pollution with chemicals and treatment plants. The cash-strapped grassroots groups prefer a cheaper method known as passive treatment. Slippery Rock, for example, Dunn's group intercepted the drainage with limestone gravel pits and ponds, improvements that lower the acidity of the runoff and remove much of the iron. The projects cost between \$50,000 and \$150,000 each. □

Clips of an article taken from Mine Safety and Health News - June 25, 1999

DOE Secretary Promises to Investigate Tailings Hazard

U.S. Energy Secretary Bill Richardson had promised to investigate the safety hazards of capping in place the uranium tailings pile on the banks of the Colorado River near Moab, Wyo.

"I will send a team of DOE people out there right away," Richardson said June 15 at the Western Governors' Association annual conference.

"If it is a hazard, it may need to be cleaned up," Richardson said in a later interview with The Salt Lake Tribune. "We want to resolve the problem... Somebody should clean it up."

Richardson said he would send a team of advisers to investigate the 130-acre pile containing 10.5 million tons of radioactive dirt, and examine the potential safety and environmental hazards posed by plans to cap the uranium where it sits.

An alternate plan to move the tailings for a disposal site several miles from the river is being pushed by Utah elected officials, environmentalists and several members of Congress. Moving the material would cost substantially more than capping it in place, the Department of Energy chief's commitment came after he was pressed by Utah Gov. Mike Leavitt, who warned of "catastrophic" consequences if the tailings

were to contaminate the Colorado River.

Leavitt, along with other Utah elected leaders, have urged the Energy Department to take control of the site from the Nuclear Regulatory Commission, which now oversees it. The NRC's plan for the closed Atlas Mining site is to cap the materials in place.

Denver-based Atlas Corp., owner of the old uranium mill, set aside enough money to pay most of capping costs. If a decision is made to move the tailings, the additional funds would have to come from Congress.

Leavitt added it is crucial the Energy Department take over because "these are the best people in the world at cleaning up these sites." The agency has cleaned up similar sites all over the West.

He called Richardson's commitment "very good news."

Rep. Chris Cannon, R-Utah, is proposing an appropriation to shift the oversight from the NRC to the DOE, and that transfer also is endorsed by other Utah officials. A similar measure has been introduced by Rep. George Miller, D-Calif.

Richardson said he previously had met with Interior Secretary Bruce Babbitt and Sen. Orrin Hatch, R-Utah, about the problem. □

Article from Mine Safety and Health News- June 25, 1999

Words to think about...

Permanence, perseverance, and persistence in spite of all obstacles, discouragements, and impossibilities: It is this, that in all things, distinguishes the strong soul from the weak.

THOMAS CARLYLE

Many of life's failures are people who did not realize how close they were to success when they gave up.

THOMAS A. EDISON

A memorandum is written not to inform the reader but to protect the writer.

DEAN ACHESON

It's a little like wrestling a gorilla. You don't quit when you're tired, you quit when the gorilla is tired.

ROBERT STRAUSS

Moral indignation is jealousy with a halo.

H. G. WELLS

Suburbia is where the developer bulldozes out the trees, then names the streets after them.

BILL VAUGHN

You can't make anything idiot proof because idiots are so ingenious.

RON BURNS

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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Jack A. Kuzar	Federal	CO	Joseph Lamonica	Mgmt.	DC	Douglas Martin	State	AZ
Rexford Music	Federal	KY	Kevin LeGrand	Mgmt.	IA	Gilbert Meira	State	NM
Joseph Pavlovich	Federal	KY	Ernest Marcum	Mgmt.	WV	Jim Myer	State	OH
Leland Payne	Federal	IN	Jon Merrifield	Mgmt.	OH	Bob Novello	State	TX
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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.*

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Upcoming events:

- **Aug. 26, 1999, Pennsylvania State Contest, Carmichaels, PA**
- **Sept. 1-2, 1999, Southern WV Mine Rescue Association Contest, Beckley, WV**
- **Sept. 2, 1999, Illinois Mine Rescue and Bench Contest, Collinsville, IL**
- **Sept. 8-10, 1999, State of Alabama Mine Rescue, Bench, First Aid, and EMT Contest, Birmingham, AL**
- **Sept. 21-24, 1999 National Mine Rescue, First Aid, EMT, and Bench Contest, Louisville, KY**
- **Nov. 18-19, 1999, Kentucky State Mine Rescue, EMT, and Benchman Contest, Lexington, KY**