

The Holmes Safety Association

BULLETIN

February 1999



INSIDE:

Colowyo Coal Co.

Walkaround inspections

Breathing easy



contents:

Paulding: The formula for a successful safety program	3
Public hearing addressed coal miners' exposure to diesel particulate matter ...	5
Colowyo Coal Company L.P.	6
New salt mine planned near flooded mine	7
Number of U.S. mining deaths declines in 1998	8
Walkaround inspections	10
Driver injured after jumping from truck	11
Willow Creek Mine Fire	12
Metal/Nonmetal fatal accident summary	15
Mining fatalities—1998	16
Breathing easy	17
Coal fatal accident summary	18
Lack of proper guarding on crusher contributed to miner's death.....	19
Man injured in abandoned mine	19
Another step in quest to end black lung disease	20
Texas mine changes tire maintenance procedures after fatal accident	20
Undetected cracks in the roof caused fatal fall	21
Coal combustion byproduct haulback today	22
These workers' little cubicles are really beneath them	23
MSHA calls attention to problem with emergency breathing device.....	24
Innovative use of video equipment enhances WIPP mine maintenance	25
Joseph A. Holmes Safety Association Scholarship Program	25

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: Many thanks to Pete Hanowich of Anderson Equipment Co. for this month's cover reprinted from the cover of Anderson Advantage magazine. If you have a potential cover photo, please send an 8" x 10" print to the editor, Fred Bigio, MSHA, 5th floor—EPD #535, 4015 Wilson Blvd., Arlington, VA 22203-1984

**KEEP US IN CIRCULATION
PASS US ALONG**



A tailgate safety meeting in progress.

Paulding: The formula for a successful safety program

By David White, Corporate Safety Director, Cornerstone/Benchmark Materials

The community of Paulding lies in the northwest corner of Ohio, nestled in a farming region known for rich fertile soil and abundant crops of corn and soybeans. However, if you are in the stone quarrying business, you might know Paulding for something other than farming.

Forty-three years ago, a quarry was developed just outside of town. This quarry, owned by Cornerstone/Benchmark Materials (Hanson PLC), has provided limestone for the construction of local roads, agricultural limestone for the farmers, jobs for the community and business for local vendors—and it has done this for the

last 33 years without a lost time accident.

To appreciate this accomplishment fully we need to think back to 1964, when gas was 30 cents a gallon and the Beatles made their first appearance on The Ed Sullivan Show. At that time, there was no Mine Safety & Health Administration and no safety

4

and health standards for the stone mining industry.

This was also a time when an extended period without a lost time accident was attributed more to good employees and a lot of luck than to a concerted effort to work safely. When trying to research the Paulding Plant's last lost time accident, I found out that it was also a time before there were any requirements for accident reports or documentation.

However, I was able to learn that the last lost time injury had occurred during the winter of 1964. An employee was working with a pneumatic grease gun, which had frozen due to the cold. He took a torch to the tip of the gun to thaw it and was apparently successful. He then unfortunately fired the gun into his hand, sending grease all the way through his thumb. That was the last time an employee of the Paulding quarry missed a day of work due to a job-related injury.

Thirty-three years represents the longest period worked without a lost time accident in the stone industry. Needless to say, we are extremely proud of this record.

The superintendent of the Paulding operation, Tony Mominee, and the Foreman, Greg (Corky) Hughes, recently took me through the mine and crushing plant, and explained to me their thoughts on the plant's long running safety success. The first thing they wanted me to know was although they value their safety record, it is not necessarily their only focus. They consider safety to be an integral part of being a high quality, low cost producer.

Many of their accomplishments are attributable to a management philosophy that centers on treating employees with dignity and respect, empowering them to make basic decisions on the best way to do their jobs and above all else, listening to what they have to say. "We have 10 employees with a total of 204 years of experience working at this plant,"

Tony said. "They know and understand how this plant, equipment and mine operate. Their ideas are valid and I always listen to what they say.

"When employees know their ideas are respected, they take a lot of pride in their jobs. Around here, the guys get a lot of enjoyment from beating their production goals. They will do their best to squeeze 230 tons an hour out of a plant designed for 200 tons."

Tony and Corky also have their own ideas about safety training. Commented Tony, "When I came to this quarry as superintendent, there was a lot of safety training being done, but I didn't feel like the employees were being educated. When you use canned programs and old videos that may not be applicable to what you are doing, the resulting training is marginal at best. You are fulfilling the letter of the law, but ignoring the spirit of it. My goal was to make our safety meetings applicable to what we do here."

Paulding's safety training is mine-specific and task-specific. This has been critical in the development of their safety culture, and makes the training a real learning and sharing experience as opposed to an exercise in boredom. "The problem we get into, however, is that when we bring in outside trainers who are still into the canned training program mode, they don't do us much good because we are so far ahead of them," Tony remarked.

"One type of training we did that had a tremendous impact on our safety culture was to teach all of our employees about the Mine Safety and Health Act. Now they understand the law and its purpose. They know they are entitled to a safe work place and that they also have an obligation to management and themselves to keep it safe."

While walking through the grounds of the plant and quarry, I

couldn't help but notice how clean and orderly everything was. The plant was clean and had been painted. No trash lay strewn about. The top and bottom step of all steps and ladders were painted a bright safety red to help prevent trips and falls. A visit to the shop showed all the tools were stored properly, and everything in the shop was clean and orderly.

I told Tony that I have always felt the condition of a shop can be a fairly accurate barometer for safety. He responded, "I think that cleaning up is where safety starts. The first thing I did when I arrived was to start a massive clean up. We spent six months working on various clean up projects. If I could give one piece of advice to a person wanting to start a safety program at their mine, it would be to start by making it spotless. A clean work place makes the men proud to work there."

Tony indicated that, "We are at a point now where if a visitor throws a piece of trash on the ground, our guys will pick it up and politely explain that we try to keep a clean plant and would appreciate their help in keeping it that way."

Tony realizes MSHA inspectors can be a good resource for safety information. "The inspectors see a lot of different operations, and are exposed to a lot of good ideas. Sometimes they see a situation here where a good idea somebody else had can be utilized."

"I'm not above taking good advice from anyone. They are also good people to bounce ideas off. If I'm thinking about trying something new and different, I like to ask the inspectors if they see any potential problems with the idea. It's better to find out what they think before you put a lot of time and effort into a project."

After I left the quarry, I reflected on what I had seen and

heard. I couldn't help but wonder, is there something here that we can package and put in place at all of our quarries? If we do the things Paulding employees do, can we go for 33 years without a lost-time accident? Probably not; if success were that simple, then I suppose all quarries would have similar safety records.

So what makes Paulding different? All of the pieces need to be in place: a good crew who have the knowledge and experience to do their jobs right, a high degree of mutual trust and respect between management and the work force, and everybody taking pride in what they do. Unfortunately, the remainder of the equation is not so simple. There are no quick fixes and no easy roads to success.

Part of Paulding's safety success may be found in Corky's reply when I asked how he undertook the daily workplace examination for safety defects. He showed me his daily log and explained how he made the rounds, then added, "...my whole



shift is one long workplace examination. I never quit looking for safety hazards and when I see one or I'm told about one, we make it right as soon as we can."

The right people and the right attitudes have helped earn Paulding its distinctive safety record. Glen Aiken, Paulding's safety coordinator, adds another slant to this outstanding accomplishment. "Think about it. Thirty-three years without a lost-time injury. Safety statistics say during that time this operation should have had 43 accidents, with seven serious enough for lost-time. One employee statistically should

have lost an eye. One employee statistically should have had a finger or toe amputated. And two employees should statistically be wearing back braces.

"The people at Paulding are not lucky," says Aiken. "They are well trained and careful. They look out not only for themselves, but also for each other. They are a success story that our industry should be proud of!"

Reprinted from the October/November 1998 issue of Stone Review.

Eight of the 10 employees of Cornerstone/Benchmark's Paulding, OH plant hold just some of the safety awards they have received during the past 33 consecutive years in which the quarry has operated without a lost time accident. Employees and their years without a lost time accident are, from left: Alan Grant, 21 years; Dave Santo, 24; Joe Garza, 20; Corky Hughes, 13; Nick Mott, 20; Bob Kochenour, 13; Tony Mominee, 26; and Charles Pollard, 22.

Public hearing addressed coal miners' exposure to diesel particulate matter

The Mine Safety and Health Administration (MSHA) held a public hearing regarding the Agency's proposed rule addressing diesel particulate matter exposure of underground coal miners on Thursday, December 17, from 9 am to 5 pm, at the Radisson Hotel in Birmingham, Ala. The proposed rule was published in the Federal Register on April 9, 1998.

Diesel particulate matter, or DPM, is composed of very small particles which can readily penetrate into the deepest recesses of the lung. Underground miners are exposed to far higher concentrations of DPM than

any other occupational group and face a significantly higher risk of dying from such diseases as lung cancer, heart failure and other cardiopulmonary problems than do miners who are not so exposed.

MSHA estimates that more than 13,000 underground coal miners are exposed to diesel emissions. Some underground miners are exposed to concentrations of DPM that are more than 10 times as high as the average workplace exposures recorded in any other industry.

The proposed rule would require mine operators to install and main-

tain high-efficiency particulate filters on the most polluting types of diesel engines found in underground coal mines and to train miners about the hazards of DPM exposure.

*MSHA News Release No. 98-1216
Mine Safety and Health Administration
Contact: Amy Louviere
Phone: (703) 235-1452
Released Wednesday, Dec. 16, 1998*

Public Hearing Addressed Coal Miner's Exposure To Diesel Particulate Matter [Online] URL <http://www.msha.gov/MEDIA/PRESS/1999/NR990110.htm> [Accessed 27 January 1999]

6

Colowyo Coal Company L.P.

An affiliate of Kennecott Energy Company

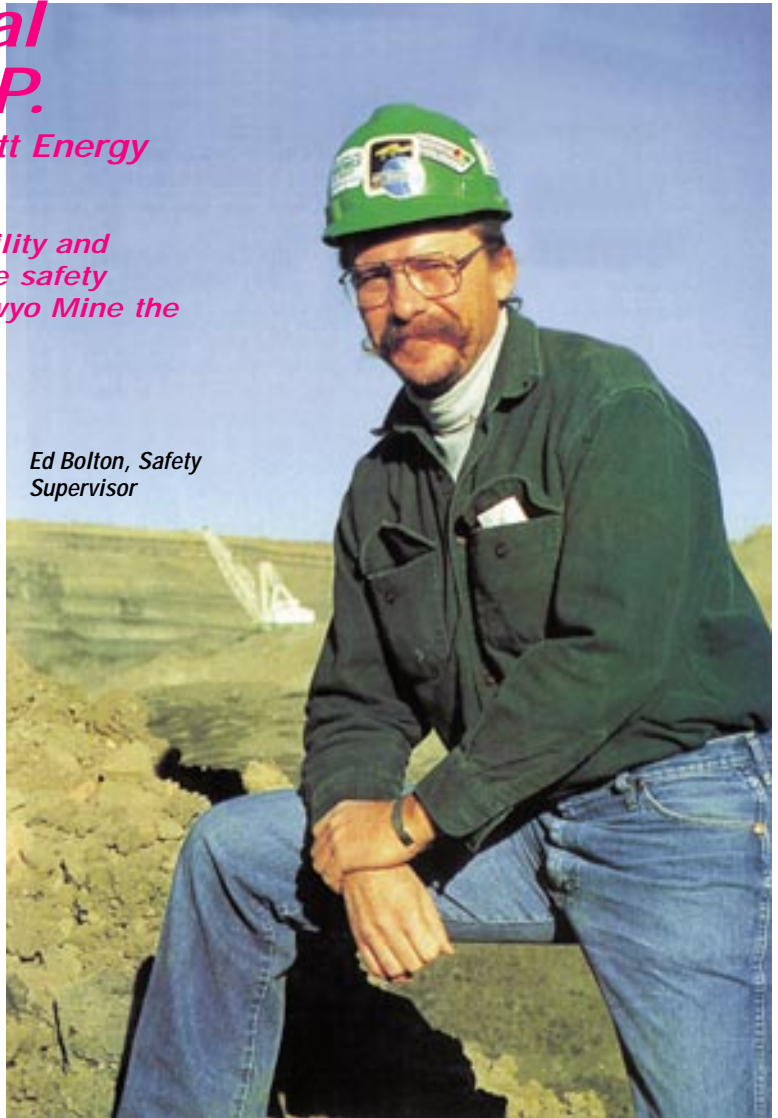
Individual safety responsibility and being a part of a mine-wide safety team helps make the Colowyo Mine the Safest Surface Coal Mine in the U.S.

The connection between safety and the mining industry is similar to the relationship between apple pie, baseball and America. Safety has to be part of a mining operation if that mine is serious about being successful. Mine safety is one of those concepts no one argues against, yet getting miners to put safety to work can be a full-time job, as it is for Ed Bolton, Safety Supervisor for Kennecott Energy's Colowyo Coal Company L.P.

After a brief stint in the U.S. Army, jumping between jobs in the oil fields, working with troubled teens, and a job as a surgical technician, Ed landed his first mining job with Colowyo in 1980. In 1985, he worked briefly as a production leadman before taking a safety technician position with the mine's safety department. In 1988, Ed became head of Colowyo's safety efforts.

Over the years, Ed's seen Colowyo's approach to safety change dramatically. Where one department was primarily responsible for safety efforts at the mine, Colowyo now has expanded mine safety to a level where each employee is responsible for mine safety. Each employee is part of a mine-wide safety team responsible for identifying and eliminating potential hazards, watching out for themselves and their co-workers, and working to keep safety awareness high.

"Colowyo's safety record gets a lot of attention, and the awards are nice, but I didn't earn them. Colowyo



Ed Bolton, Safety Supervisor

employees are the ones who are the key to our success with safety," Ed said.

Colowyo employees won their first Sentinels of Safety trophy in 1991, then again in 1995, and most recently in 1997. There have been other national state awards as well. In February 1998, Colowyo employees set an all-time U.S. Department of Labor safety record for a single surface coal mine, working 2.6 million hours without a lost-time injury.

"Colowyo's workforce has compiled an impressive list of accomplishments, but that's because we have exceptional people working here," Ed said.

In 1990, Ed started an experimental safety team comprised of a single work group of electricians at Colowyo. Mine managers gave the team free reign in identifying safety concerns and listened to the safety team's recommendations on how to fix safety problems. In many instances, the electricians were able to fix or resolve safety concerns themselves, which led to a work group which suddenly felt empowered to change the mine's safety performance for the better. Other safety teams were added until everyone at Colowyo became involved and realized their own importance in influencing mine safety at Colowyo.

While teams remain the heart of Colowyo's safety efforts, Ed's own involvement with the teams is limited these days. His latest, personal approach to safety comes in the form of one-on-one rides with equipment operators, working to raise safety awareness in Colowyo's three surface coal pits.

The Colowyo workforce embraces the philosophy that all accidents can be prevented. An important part of prevention is safety awareness.

"The reason people get hurt are the little details," Ed explained, "We need to raise our awareness of those little details if we're going to work accident-free."

Ed has been known to take creative approaches in raising safety awareness, and has dressed in costumes to pass out snacks and safety tidbits among his co-workers.

"I've enjoyed the opportunity I've had here at Colowyo, being allowed to develop non-traditional approaches to safety. That freedom doesn't happen very often in our industry and, in the end, it's meant less 3:00 a.m.



1997
Sentinels of
Safety winners

phone calls to my home informing me that someone's hurt on the job." Ed said.

The Colowyo Mine is owned and operated by Kennecott Energy Company of Gillette, Wyoming. Colowyo is located in Northwest Colorado. The Colowyo workforce moves over 50 million cubic yards of rock annually, while producing six million tons of coal. The mine employs 330 people.

The Colowyo surface mine uses draglines, shovels, and 240-ton trucks in its operation.

Ed Bolton is 43 years old, single and in his spare time, enjoys riding his motorcycle, fly fishing, woodworking, and rock hounding.

Reprinted from the October/November 1998 issue of Coal People magazine.

New salt mine planned near flooded mine

Rock-salt mining, a time-honored industry in a rural region of western New York, is making a comeback.

A new salt mine is being excavated a few miles from a Manhattan-sized mine that operated for 110 years before being shut down by flooding four years ago.

Eleven miners have already been hired to sink the mine's two shafts near Mount Morris, 35 miles south of Rochester, N.Y. As many as 175 miners could be employed when full-time mining begins in 2000.

It will be another year before the shafts are completed and mining starts, said Joseph Bucci, co-founder of American Rock Salt Co. The opera-

tors finalized \$113 million in financing earlier.

Critics worry that mine operators have not provided adequate protections at the 200-acre construction site for three American Indian burial sites, but Bucci assured them that the archaeological plots will not be damaged.

The old mine at nearby Retsof supplied about 2.5 million tons of rock salt a year—most of the salt used for de-icing roads in the Northeast. The hamlet got its back-to-front name from 19th-century salt baron William Foster.

The 18-square-mile site was the largest rock-salt mine in the Western

Hemisphere before a cavern ceiling collapsed on March 12, 1994. The cave-in cracked rock layers overhead, allowing a network of aquifers to gush in.

The cave-in damaged roads overhead, cracked the foundations of a small bridge and caused farmland to sink.

Up to 200 miners were laid off. Then, in 1996, Holland-based operator Akzo Nobel dropped plans to dig into the same 1,100-foot-deep salt bed at Hampton Comers, seven miles from Retsof.

Reprinted from the November 13, 1998 issue of Mine Safety and Health News. Copyright 1998 by Legal Publication Services.

8

Number of U.S. mining deaths declines in 1998

Accidental deaths at mines in the United States declined by 12 percent last year, according to preliminary data from the U.S. Department of Labor's Mine Safety and Health Administration (MSHA). Eighty miners died from work-related injuries in 1998, compared to 91 in 1997.

"These deaths represent a very real tragedy to the families and friends of the 80 miners who lost their lives last year," said J.Davitt McAteer, assistant secretary of labor for mine safety and health. "Hopefully, we will learn from these accidents and will prevent future ones, because the loss of even one miner's life is far too many."

Last year saw the fewest mining-related fatalities, based on records dating back to 1869. The previous low was achieved in 1994, when 85 miners died on the job.

In the nation's coal mines, preliminary figures indicated fewer deaths occurred for the third consecutive year, with 29 fatalities in 1998, down from 30 in 1997, and 39 in 1996.

Deaths in the metal and nonmetal sector—although dropping from 61 in 1997 to 51 in 1998—are still too high, noted McAteer.

"It became clear to this Agency last year that we needed to devote even greater resources to combat the rise in metal and nonmetal mining fatalities," said McAteer. "Those efforts appear to be helping, with ten fewer deaths in 1998. However," he added, "there's still much work to be done, and there are additional concerns that we must address."

"Our efforts along with the efforts of unions and working miners as well as company officials have contributed to this successful undertaking, but those efforts need to be increased in

order to reach our common goal of a fatality-free mining industry," McAteer said. Those additional concerns revolve around last year's passage of a \$217 billion highway construction bill, which will likely prompt increased demand for crushed stone used in building new roads. "This means a surge in jobs, many going to new, inexperienced miners," said McAteer. "We must ensure that each one of these new miners receives the training he or she deserves to recognize hazards and avoid accidents. The agency is currently working on new regulations for training."

Of the 51 metal and nonmetal mining fatalities during 1998, 21 involved powered haulage equipment, still the leading cause of fatal injuries

in the mining industry, but down from 24 in 1997. Slips and falls of a person, the second highest category of fatal accidents, claimed the lives of eight metal and nonmetal miners this year. Eight of the year's fatalities occurred at underground mines; while 43 happened at surface mines.

Texas had the most metal and nonmetal mining fatalities for the second consecutive year, with five, down from six in 1997.

Of the 29 coal mining fatalities that occurred in 1998, 13 were the result of roof falls, the leading cause of fatal coal mining accidents. Eight other deaths occurred due to powered haulage accidents. Twenty-two of the fatal coal mining accidents occurred at underground mines, while seven happened at surface mines.

Coal mining fatalities by state as of 12/31/1998

State	1998	1997	1996	1995	1994	1993	TOTAL
Alabama	1	1	2	3	2	1	10
Arizona	1	1	1	1	1	1	3
Colorado	2	1	1	1	1	1	4
Illinois	1	2	2	2	2	1	8
Indiana	1	1	1	1	1	1	2
Kentucky	12	5	12	12	12	19	72
New Mexico	1	1	1	1	1	1	2
North Dakota	1	1	1	1	1	1	2
Ohio	1	1	1	1	1	1	2
Penna. (Anth.)	1	1	1	4	3	2	10
Penna. (Bit.)	4	3	3	4	4	3	18
Tennessee	1	1	1	1	4	1	6
Texas	5	5	5	5	5	5	1
Utah	3	2	2	2	2	2	9
Virginia	5	5	3	1	3	1	18
Washington	1	1	1	1	1	1	1
West Va.	6	7	12	16	10	13	64
Wyoming	1	1	1	1	1	1	5
TOTAL	29	30	39	47	45	47	237

States that are not listed had no coal mining fatalities from 1993 through 1998.

Metal and Nonmetal fatalities by state as of 12/31/1998

State	1998	1997	1996	1995	1994	1993	1992	TOTAL
Alabama				1				1
Alaska		1		1	1			3
Arizona	3	3	2	4		6	1	19
Arkansas	2		1			2		5
Calif.	3	6	4	5	3	3	2	26
Colorado	1	1		1	1	1		5
Conn.		1		1				2
Florida	2	5	1	3			3	14
Georgia	1	3		3	3		1	11
Idaho	2	2	1		1	2	1	9
Illinois	1	3	2		2	2	6	16
Indiana					2		1	3
Iowa	3	1	1		1	1	1	8
Kansas	1	2				2		5
Kentucky	1	2	1		1	1	1	7
Louisiana	1		1	1				3
Maryland	1		2	1			2	6
Mass.	1	1			1			3
Michigan	3	1	1	2		2	1	10
Minn.	1				1		1	3
Miss.		1	1	1				3
Missouri	1	3	3	3	2	1	3	16
Montana			1	2			4	7
Nebraska					1	1		2
Nevada	2	5	4	7	4	2	3	27
New Hampshire		2						2
New Jersey		1		1	1		1	4
New Mexico		1		2		2		5
New York	1	1		1				3
North Carolina	1	1	2		1	1		6
Ohio		2		1	1	1		5
Oklahoma			2				2	4
Oregon	3	2	2				1	8
Pennsylvania	2		5	1	2	5	3	18
Puerto Rico			2			1	1	4
South Carolina		1	1	2		1		5
South Dakota				1	1			2
Tennessee	2	3	1	2		1	1	10
Texas	5	6	3		1	3	1	19
Utah	2	1	1	1		2		7
Vermont					2			2
Virginia			1	2	2	2	2	9
Washington		1		2	2	1		6
West Va.							1	1
Wisconsin	2		1		1	4		8
Wyoming	1			1	2	1		5
TOTAL	51	61	47	53	40	51	43	346

The states of Delaware, Hawaii, Maine, North Dakota, and Rhode Island had no fatalities in metal and non-metal mines from 1992 through 1998.

The highest number of fatal coal mining accidents occurred in Kentucky, which had 12 deaths, up from five in 1997. West Virginia and Virginia had the next highest number of fatal coal mining accidents with six and five, respectively, during 1998. West Virginia's 1998 figures represented a slight decrease from 7 coal mining deaths in 1997, while Virginia's remained the same.

"Naturally, we are pleased that the number of coal mining deaths continues to decline and that the last three years have represented record lows, but we are by no means going to become complacent," said McAteer. "MSHA will continue in its efforts to prevent miners from suffering fatal injuries and, ultimately, to eliminate fatal accidents altogether."

MSHA inspects all mining operations in the nation for adherence to federal safety and health regulations.

*MSHA News Release No. 99-0105
Mine Safety and Health Administration
Contact: Amy Louviere
Phone: (703) 235-1452
Released Tuesday, January 5, 1999*

*Number of U.S. Mining Deaths Declines
[Online] URL <http://www.msha.gov/MEDIA/PRESS/1999/NR990105.htm> [Accessed 27 January 1999]*

Winter Alert still in effect!

- Always maintain adequate mine ventilation and make frequent checks for methane and proper airflow.
- Know your mine's ventilation plan and escapeways. Properly maintain methane detection devices. Communicate changing mine conditions to one another during each shift and to the oncoming shift.
- Control coal dust with frequent applications of rock dust.
- Make frequent visual and sound checks of mine roof during each shift. NEVER travel under unsupported roof!

10

Walkaround inspections:

How making them part of your daily routine can save you time and money

Checking fluid levels is a key part of a good daily "walkaround inspection." The procedures are simple, but operators know they can eliminate all kinds of problems.

Ten minutes every morning may save you days—even weeks—of unscheduled downtime and many thousands of dollars. Ten minutes is all it takes for you or your operator to do a walkaround inspection of your machine before you start a day's work.

According to Cloyce Lamb, Manager of Training and Materials at the Komatsu Training Center, those 10 minutes are time well spent. "If you maintain a piece of today's equipment, it's going to run a long time with very little downtime," he said. "But maintenance is the key, and the walkaround inspection is a great place to start your maintenance routine."

Where to start

The first step a good operator takes when reporting to a jobsite is to check the ground under and around his machine. He's looking for puddles of oil or any other fluid that may have leaked from the machine.

"Even if it's just a little puddle, it means you have a leak," said Lamb. "Leaks are the most often ignored clue that you could have a major problem developing. Because if oil can get out, dirt can get in. That's just the way it is."

After eyeballing the area under the machine for puddles, an operator should check the machine itself for signs of leakage. Maybe a leak is small enough that it's not causing a puddle, but you can see a dirt buildup around the engine, brakeline or cylinder—anywhere fluid passes through.

"Any leak, even a small one, is not going to get better by itself," said Lamb. "It's going to keep getting worse until you have a major problem. Don't dismiss a leak just because it's a small one. Take care of it right away."



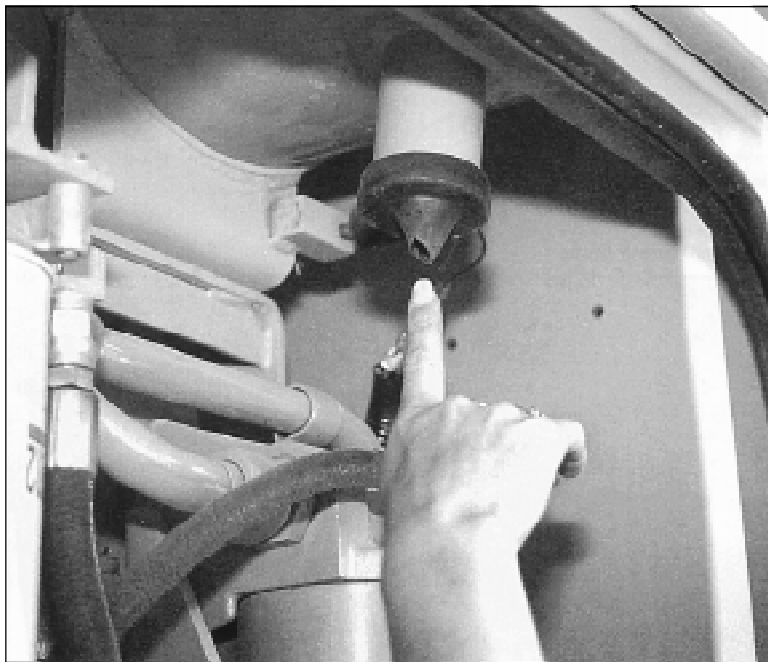
After checking for leaks, check your engine and hydraulic oil levels. And make sure the machine is on level ground to get a true reading.

Look for damage and wear

The next step is to make sure everything is in working order. Look your machine over to see if it has sustained any damage or if any parts are showing excessive wear.



Fonda Wood, Sales Trainer at the Komatsu Training Center, says checking belt tension and wear should be part of your morning walkaround.



"It's a good idea to feel the belts and hoses," said Fonda Wood, a sales instructor at the Training Center. "You want to make sure there are no cracks and that they're not too loose. You don't want a lot of play in them. Make sure the pilot hoses are clamped."

Next, check your engine and radiator to see if dirt or dust has accumulated. If so, clean it. Also, look for any flammable material (dead leaves, twigs, or paper) that may have accumulated around any high-temperature

engine parts or the muffler. Remove them to avoid fire potential.

Don't forget tires and bolts

If you're working a rubber-tired machine, check the tires for damage or wear and for any loose mounting bolts. If the tires are cracked or peeling, they should be replaced. If they are worn or damaged, they may burst, which is a serious safety concern.

During your walkaround, it's a good idea to check not only the tire

bolts, but also bolts on the air cleaner, the ROPS, and the steps and handrail as well. Also, wiggle your battery terminal and tighten it if it's loose.

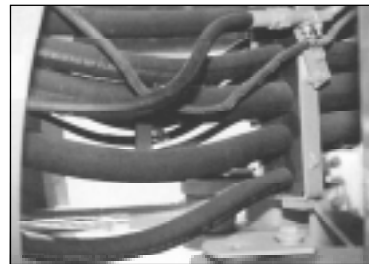
Finally, before you turn on the machine, clean your cab window and check your seat belt.

Head off problems

While it sounds like a lot to do, the whole process should take 10 minutes or less. Many of today's Komatsu machines have a monitoring panel in the cab to help operators discover potential problems. But it should be used in conjunction with the walkaround inspection, not as a replacement for it.

"A walkaround keeps you in touch with the machine," said Lamb. "A short inspection every morning will help head off potential problems. If you make it part of your routine maintenance program, it will keep your minor problems from becoming major repairs."

Reprinted from the 1998 No. 6 issue of Anderson Advantage.



If you suspect your air filter is clogging, you may need to check the dust evacuation tube. If it's clogged, remove the obstruction.

A usual hose check will help prevent potentially dangerous and damaging leaks.

Driver injured after jumping from truck

A Republic, Wash., man broke several bones Sept. 2 when he jumped out of a runaway mining truck and was run over by it.

The victim, 49, broke both his legs, bones in his hip, and an ankle in the incident.

The accident occurred about 10:55 pm near Curlew, Wash. He was driving a 54,000-pound underground hauler when it malfunctioned and went out of control.

The machine rolled down a 350-foot hill and hit an embankment. That's when Garlin jumped off and was run over by the hauler.

A 1994 Bureau of Mines study found that it was far better to stay seat-belted into a runaway vehicle than to try and jump clear of the vehicle or machine. A study of serious accidents between 1989 and 1991 showed that no miners were killed in accidents when wearing their

seatbelts. The study also found that miners were more likely to be killed trying to jump from a runaway vehicle and those who did not die when jumping from runaway vehicles had more severe injuries than those miners who rode out the accident with their seatbelts on.

Reprinted from the September 18, 1998 edition of Mine Safety and Health News by Legal Publication Services.

Willow Creek Mine Fire

A chronology of events

Week of November 22, 1998

On Wednesday, November 25, 1998 at approximately 6:20 pm, a mine fire occurred at the Cyprus Plateau Mining Corporation's Willow Creek Mine, which is located near Price, Utah. The accident occurred near the longwall tailgate area during normal coal production. No injuries resulted from the incident, however, several longwall crew members were knocked down by the ensuing rush of air. An orange colored flame was observed in the gob that appeared to move toward the face area and then back into the gob.

The shift foreman ordered an evacuation using a unique system which operates like a pager that was worn by some miners. This "PED" system (Personal Emergency Device),



allowed for constant contact with the miners, even those working in remote areas. After the accident, a message was sent to the miners—"mine fire-evacuate". The 45 miners were safely evacuated in about 45 minutes.

Power was removed from the mine. The mine was temporarily sealed at the portals using earthen seals. The Main Fan was de-energized and sealed. Sealing was completed approximately nine hours after the incident.

Monitoring of the atmosphere within the sealed mine was conducted at the Portals and at the Mine Fan. A gas concentration encountered on November 27 at the Mine Fan sam-



pling location was approximately: Methane-25%, Oxygen-1.4%, Carbon Monoxide-23,000 ppm, Carbon Dioxide-12%, and Hydrogen-10, 110 ppm.



Mine Safety and Health Administration (MSHA) personnel were immediately dispatched to the minesite. The MSHA Command Vehicle was brought to the site.

MSHA established an infrared monitoring station and a chromatographic laboratory in the mine office.



The information from the monitoring locations was continually evaluated by MSHA and the mine operator.

Site preparation was underway for Borehole 1 (Located in the D Northeast Main Entries near the D-1 Northwest Tailgate Entries) and Borehole 3 (Located in the D Northeast Main Entries near the D-2 Northwest Tailgate Entries). Drilling commenced for Borehole 2 (Located in the Gob in by the Longwall Face).

A gas concentration encountered on November 28 at the Main Fan sampling location was approximately: Methane-49%, Oxygen-0.4%, Carbon Monoxide-12,000 ppm, Carbon Dioxide-11%, and Hydrogen-7,500 ppm.



Week of November 29, 1998

Drilling of the boreholes into the mine for monitoring and possible gas injection continued. Borehole 1 reached a depth of 702 feet of the 1,000 foot total. Borehole 2 reached a depth of 1,080 feet of the 2,440 foot total depth. Numerous difficulties were encountered causing delays. Borehole 3 reached a depth of 706 feet of the 720 foot of total depth.

Gaseous carbon dioxide was injected into the fire area through the existing Gob Ventilation Borehole (GVB). Because of the rugged terrain, a storage and pumping area was established approximately 1 mile from the injection site. Carbon dioxide was piped to the GVB. Injection was started at 4:15 p.m. on December 3.

The rate of injection was approximately 20 gallons per minute (gpm). A total of 3.7 million cubic feet had been injected by December 5.

A gas concentration encountered on December 5 at the Main Fan sampling location was approximately: Methane-63%, Oxygen-1.4%, Carbon Monoxide-1,060 ppm, Carbon Dioxide-13%, and Hydrogen-1,200 ppm.



Week of December 6, 1998

The injection of gaseous carbon dioxide into the fire area through a GVB was completed on December 7. Approximately 9.0 million cubic feet of carbon dioxide was injected into the mine.

Borehole 4 was started and completed by December 9. This hole was approximately 250 feet deep and was located inby the No. 10 Crosscut on left side of the D Northeast Mains. This borehole was located between the mine portals and the last known fire area. Sampling at the borehole indicated a stable atmosphere in the mine.

A command and advisory center was established in the Mine Office. Personnel from MSHA, the State of Utah, and the company staffed these centers when miners were underground.

On December 9, mine rescue teams entered the sealed mine for the first time and explored to a depth of a 1,000 feet into the D Northeast Mains. Visibility was good, no fire damage was encountered, and the atmosphere was stable. Significant quantities of air movement or "Convection Currents" were found within the sealed area. A sampling line was installed in the D Northeast Mains to No. 10 Crosscut.

On December 12, mine rescue teams re-entered the mine. The teams worked to construct "substantial stoppings" (temporary seals) in the D Northeast Mains between the No. 1 and No. 2 Crosscuts for the re-ventilation/recovery of the mine. An auxiliary fan was set up near the No. 4 Portal to induce ventilation into the mine. Also, mine rescue teams installed three additional sampling lines further inby to aid in the monitoring of the sealed mine atmosphere.

Drilling of the boreholes into the mine for monitoring and possible gas injection continued. Borehole 1 reached a depth of 807 feet of the 1,000 foot total. Borehole 2 reached a depth of 1,080 feet of the 2,440 foot total depth. However, due to the difficulties encountered, the borehole had to be abandoned and a new borehole was started. The new Borehole 2 reached a depth of 1,075 feet of the 2,440 foot total. Borehole 3 was completed on December 6. The total depth of the borehole was 730 feet.

A gas concentration encountered on December 12 at the Main Fan sampling location was approximately: Methane-58%, Oxygen-2.5%, Carbon Monoxide-771 ppm, Carbon Dioxide-17%, and Hydrogen-205 ppm.

Week of December 13, 1998

Mine rescue teams re-entered the mine and successfully completed the recovery/re-ventilation phase to No. 9 Crosscut of the D Northeast Mains. The Main Fan was restarted during this period. Because of the significant methane/carbon dioxide liberation, a horizontal in-mine degasification system was installed to remove the gases from the sealed area. The vertical gob degasification system was also used. Monitoring locations were re-established farther in the mine.

Borehole 1 was completed on December 10. Drilling continued at Borehole 2. Difficulties in drilling continued.



Exploration of the D Northeast Mains to No. 17 Crosscut was completed at the end of the week.

A gas concentration encountered on December 19 at the Borehole 1 sampling location was approximately: Methane-64%, Oxygen-1.7%, Carbon Monoxide-320 ppm, Carbon Dioxide-18%, and Hydrogen-49 ppm.



Week of December 20, 1998

Mine rescue teams constructed substantial stoppings in the D Northeast Mains between Nos. 13 and 14 Crosscuts. Monitoring locations were re-established further in the mine. Work on extending the horizontal degasification pipe in the D Northeast Mains inby No. 14 Crosscut continued. It was a difficult, slow process.

Drilling continued at Borehole 2. Difficulties in drilling continued.

A gas concentration encountered on December 19 at the Borehole 1 sampling location was approximately: Methane-61%, Oxygen-2.3%, Carbon Monoxide-132 ppm, Carbon Dioxide-20%, and Hydrogen-19 ppm.

Week of December 27, 1998

Mine rescue teams reentered the mine and successfully completed the recovery/re-ventilation phase in the D-Northeast

Mains to between Nos. 17 and 18 Crosscuts.

Drilling continued at Borehole 2. Difficulties in drilling continued.

Exploration in the D-Northeast Mains to No. 23 Crosscut and in the D Seam Bleeders to No. 12 Crosscut was completed at the end of the week. Evidence of heat was limited to deformation of plastic pipe that was suspended from the mine roof and a tar-like substance found near the roof in the return entries.

A gas concentration encountered on January 2 at the Borehole 1 sampling location was approximately: Methane-64%, Oxygen-1.4%, Carbon Monoxide-110 ppm, Carbon Dioxide-20%, and Hydrogen-14 ppm.

Week of January 3, 1998

Mine rescue teams re-entered the mine and successfully completed the recovery/re-ventilation phase in the D-Northeast Mains to between No. 27 and 28 Crosscuts. Explosion resistant seals were completed in the D-Seam Bleeder between Nos. 6 and 7 Crosscuts. Substantial stoppings were completed in the D-1 Northwest Tailgate between Nos. 8 and 9 Crosscuts.

The horizontal degasification pipe was extended into the D-Seam Bleeder Entries prior to completion of the explosion resistant seals.

Drilling continued at Borehole 2. Difficulties in drilling continued.

Exploration in the D-Northeast Mains to No. 29 Crosscut, in the D-1 Northwest Headgate to No. 6 Crosscut, and in the D-1 Northwest Tailgate to No. 12 Crosscut was completed at the end of the week. Little evidence of damage from heat was found in areas other than in the return entries.

The Assistant Secretary J. Davitt McAteer; the Administrator for Coal Mine Safety and Health, Robert Elam; the Acting Deputy Administrator for Coal Mine Safety and Health, Timothy Thompson; and the Special Assistant to the Assistant Secretary, Tony Oppgard, toured the minesite.



A gas concentration encountered on January 9 at the Borehole 1 sampling location was approximately: Methane-63%, Oxygen-1.8%, Carbon Monoxide-68 ppm, Carbon Dioxide-19%, and Hydrogen-12 ppm.

Week of January 10, 1999

Exploration was completed in the D-Northeast Mains to No. 36 Crosscut, in the D-1 Northwest Headgate to No. 12 Crosscut, and in the D-2 Northwest Headgate to No. 6 Crosscut. No evidence of damage from heat was found in these areas.

Mine rescue teams successfully completed the recovery/re-ventilation phase in the D-Northeast Mains to between Nos. 34 and 35 Crosscuts. Explosion resistant seals were completed in the D-1 Northwest Tailgate between Nos. 7 and 8 Crosscuts and in the D-1 Northwest Headgate between Nos. 10 and 11 Crosscuts. Monitoring locations were established in by the explosion resistant seals and the substantial stoppings. The fire

area was effectively isolated with explosion resistant seals from the rest of the mine.

Borehole 2 was completed on January 12. Samples of the mine atmosphere were collected. The injection of Carbon Dioxide into Borehole 2 began on January 16.

A gas concentration encountered on January 16 at the Borehole 2 sampling location was approximately: Methane-78%, Oxygen-0.7%, Carbon Monoxide-14 ppm, Carbon Dioxide-14%, and Hydrogen-44 ppm.

Week of January 17, 1999

Injection of 180 tons of liquid carbon dioxide (equivalent to 3 million cubic feet as a gas) into the fire area through Borehole 2 was completed at 8:15 pm on January 17. A "Huff and Puff" exchanger regulated the flow of the liquid carbon dioxide into the mine. After a waiting period to allow the pipe and strata to warm, sampling at Borehole 2 resumed on January 20. Gas concentrations at Borehole 2 was approximately Methane-63%, Oxygen-0.6%, Carbon Monoxide-33 ppm, Carbon Dioxide-28%, and Hydrogen-6 ppm.

Willow Creek Mine Fire: A Chronology of Events. [Online] URL <http://www.msha.gov/WCREEK/CHRONO/CSTART.htm> [Accessed 27 January 1999]

Metal/Nonmetal fatal accident summary

Surface Nonmetal Mine (Limestone) Fatal Fall of Person Accident

General information

A 50-year-old foreman was fatally injured at about 11:20 am on November 13, 1998, when he fell from the top of a bin which was being dismantled. He had a total of 30 years experience as an ironworker and about two years of experience in mining, the last one and one-half years as a foreman with this contractor. He had not received training in accordance with 30 CFR Part 48.

The quarry, an open pit crushed stone operation was located in Waukesha County, Wisconsin. The mine was normally operated one, 12-hour production shift and one, 12-hour maintenance shift a day, five days a week. A total of 20 persons was employed.

Limestone was drilled and blasted from multiple benches in the pit. Broken material was conveyed by belt to the primary plant where it was crushed, screened, and stockpiled prior to being sold for use as construction aggregate.

An outside service contractor located in Racine, Wisc. had been enlisted to dismantle a hopper-type bin. The contractor had worked at the mine since November 9, 1998. This was the first time the contractor had worked at this mine, but had done work for the mine operator at other sites on previous occasions.

Description of the accident

On the day of the accident, the victim reported for work at 7:00 am, his normal starting time. The weather was partly cloudy, 40 to 50°F, with a breeze up to 10 miles per hour. It

was decided that it was not too windy to work that day. The victim met with the crane operator and the ironworker, who was to work on top of the bin. The ground-man arrived at about 8:30 am. It was the crane operator's and the ground-man's first day at this job site, and the victim discussed the dismantling procedure with the crew prior to starting work—they were going to work at the old lime mill area of the plant. The bin being dismantled consisted of twin hoppers 40 feet, 10 inches high. The top section of the hopper was 24 feet, 7 inches long and 22 feet, 3 inches wide. The roof on top of these hoppers was constructed of 3/16-inch metal plate, which extended about 3 feet past the top edge on the east and south sides. The roof plates were the first pieces removed during the dismantling process. The ironworker and the victim began to remove pieces of metal and lower them to the ground. After cutting the roof plates loose with a torch, they would cut a hole to fit the shackle and then attach the steel choker. The choker was attached to the lead line on the crane and either the ironworker or the victim would signal the crane operator using a Grove RT65S-7.5 mobile crane to handle dismantled sections of the bin. As each piece was removed, it was secured by a shackle and steel choker, then lowered to the ground where it was unhooked by a ground-man. A JLG Lift with a two-person basket was used for workers to access the top of the bin. The lift platform was enclosed with handrails and hydraulically actuated controls were located in the basket. Routinely, full-body harnesses with short lanyards were worn

while in the liftbasket and while working above ground on the bin.

Just after 11:00 am, the victim cut the welds on the inside edge of the fourth plate and proceeded to cut from the outside edge inward to remove a section about 10 feet long and 42 inches wide. After making this cut, he raised the basket and positioned it to one side, halfway down the length of the bin. He then unhooked his lanyard, got out of the basket and onto the roof.

The crane operator and the groundman saw the victim walking on the northeast corner of the bin along the I-beam, which was supporting one side of the plate he had just cut. The plate was not yet hooked to the crane. When the crane operator and the groundman looked again, they saw the victim and the plate falling to the ground. The victim landed on his back and the plate landed beside him.

The crane operator and the groundman called for help and attended to the victim until medical assistance arrived a short time later. The victim was transported by helicopter to a local hospital where he died that afternoon.

Conclusion

The accident was caused by failure to use the safety harness and lifeline while working on the bin.

Extracted and edited from an MSHA Accident Investigation report by Fred Bigio.

16

Mining fatalities—1998

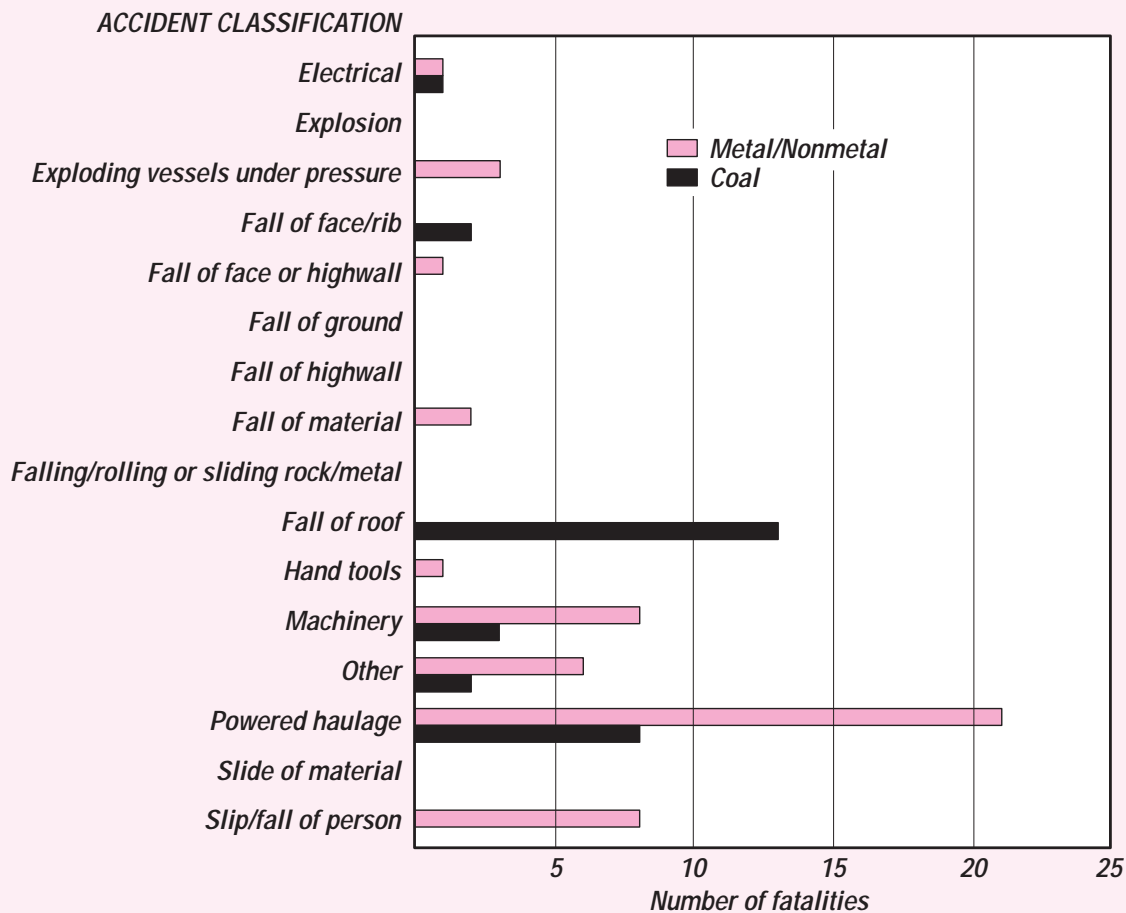
This article updates the status of fatalities occurring in both coal and metal/nonmetal mines from January through December of 1998. Based on preliminary accident reports, as of December

31, 1998, eighty fatalities have occurred at coal and metal/nonmetal mining operations. During this period, 29 fatalities occurred at coal operations and 51 fatalities occurred at

metal/nonmetal operations. Fall of roof fatalities in coal and powered haulage fatalities in metal and nonmetal were the most frequent accident classifications.

Fatality Summary—January through December 1998

Based on preliminary accident reports as of 12/31/98



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

Coal Mining

Thirteen of the fatalities were classified as fall of roof. Of the twenty-nine fatalities, eleven occurred in Kentucky and six occurred West Virginia. Twenty-two fatalities occurred underground and seven occurred on the surface.

Metal/Nonmetal Mining

Twenty-one of the fatalities were classified as powered haulage; eight were slip or fall of person and eight were machinery. Twelve fatalities occurred at limestone operations and eleven occurred at sand and gravel operations. Five fatalities occurred in Texas, three each occurred in Arizona, California, Iowa, Michigan and Oregon. Forty-

three fatalities occurred at surface operations and eight fatalities occurred underground.

Submitted by:
John V. Forte
National Mine Health & Safety Academy

Breathing easy

Respiratory protection equipment can help workers guard against the effects of fugitive dust.

By Patrick Hernan

A good respiratory-protection program in a pit and quarry environment is not always an easy thing to define. No two mining sites are the same, and stone and sand producers often have a different product mix with a different set of risk factors.

Risk "depends on exposure levels and concentrations," says Michael Fuchs, product manager for Uvex, a leading safety-equipment manufacturer based in Providence, R.I.

Fuchs and other experts say exposure to airborne particles can lead to diseases such as asthma, lung cancer and silicosis. An effective prevention program must include engineering controls, the proper breathing equipment, workplace vigilance and employee training.

"You just can't tell someone to put on a respirator and go at it," Fuchs says.

Silicosis, which is receiving increased attention from the National Institute for Occupational Safety and Health and the International Agency for Research on Cancer, is an important concern of sand and gravel producers.

The disease comes in three non-reversible forms and is caused by prolonged exposure to crystalline silica dust.

Chronic silicosis usually occurs after 10 or more years of exposure at relatively low concentrations. Accelerated silicosis results from high concentrations and develops five to 10 years after the first exposure.

Acute silicosis may develop within weeks of exposure to the highest silica-dust concentrations. About 250 construction-related employees die from silicosis each year. The highest concentrations of airborne silica may occur where abrasive blasting, crush-

ing or concrete and masonry sawing take place.

"Damage is done [to] the lung, depending on the particulate," Fuchs says.

Even though the pit and quarry industry has taken a proactive approach toward silicosis prevention, it is essential for producers to educate themselves and employees on workplace dangers.

A preventable condition

One of the odd things about silicosis, say the experts, is that it continues to occur despite the fact it is preventable. Purchasing the proper respiratory equipment—from half-masks to full-masks in their various forms—not only aids in prevention, it satisfies federal work-place safety regulations.

Fuchs says producers should ask important questions: Does the job-site equipment match employees' needs? Have workers been adequately trained in the use of respirators? Are maintenance procedures being followed?

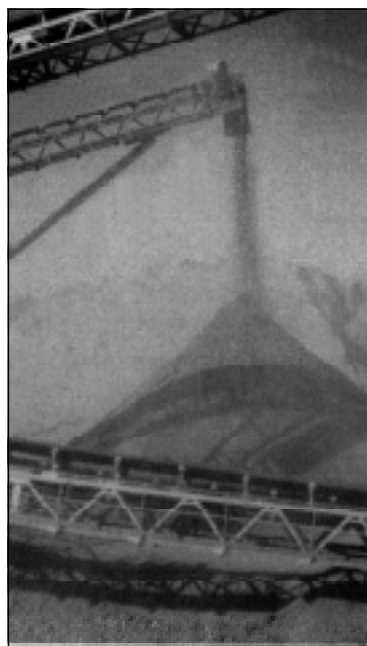
And producers should not limit themselves solely to silicosis prevention. Fuchs says producers should not forget about "nuisance dust," which frequently circulates indoors and carries its own set of health risks.

Nuisance dust, Fuchs says, often causes problems in the upper-respiratory system.

Since that system is in a "constant cleaning mode," Fuchs says, hints that something may be wrong in the work environment include coughing and sneezing by employees.

Multiple exposures to nuisance dust, paint sprays and other potentially harmful products often present at job sites create risks to workers, Fuchs says.

To minimize exposure, keep workers safe and avoid trouble from



regulatory agencies, producers should do a careful analysis of the challenges they have to overcome and purchase respiratory equipment that will do the job.

"There are many manufacturers that provide the complete array of products—from disposable to self-contained units," Fuchs says.

Reprinted from the July 1997 issue of Quarry Safety.

Coal fatal accident summary

Fatal fall of rock accident

General information

The mine consists of two pits with one spread of equipment used for both pit areas. The mine produces coal from six coal seams: Taylor Rider, Taylor, Hamlin, Hazard #4 Rider, Hazard #4, and Whitesburg #3. The mining process involves drilling holes, insertion of explosives, detonation of explosives, removal of overburden and removal of coal from each seam as the process is repeated. Coal is then transported by truck to loadout facilities at the processing plant, about 13 miles away.

A contractor is used to mark drill hole locations, insert explosives into drill holes, and detonate these explosives. The mine currently employs 34 persons. Four production crews are used by the company. A twelve hour day-shift and twelve hour night-shift operate on four consecutive days. Another set of (day-shift and night-shift) crews operate the next four days. The crews alternate working every four days. The mine normally operates seven days-per-week, producing an average of 1,300 tons of coal per day.

Description of accident

On Monday, October 5, 1998, at about 6:00 pm, the night-shift crew consisting of 12 employees entered the mine for the regularly scheduled production shift. The night-shift foreman, assigned the employees their duties.

Prior to the start of the second shift, three contract employees loaded drill holes and blasted overburden material from the No. 1 Pit, located about 20 feet from the No. 2 Pit. Detonation of the explosives occurred at about 5:30 p.m. After detonation of the explosives the certified blaster, examined the No. 1 and No. 2 pit areas for hazards. The certified blaster examined the highwall before marking hole locations to be drilled. The certified blaster found no hazards.

Soon after the detonation of explosives and the post-blasting examination, night-shift personnel resumed the mining cycle. One of the bulldozer operators began removing overburden opposite the No. 1 pit. The other bulldozer operator was working at the No. 1 Pit. The victim, a highwall drill operator, trammed an Ingersoll-Rand DML-45 highwall drill onto the Hazard #4 Rider bench, while three of the contract employees were at the bench marking drill hole locations. The contract employees finished marking the hole locations and left the bench site. The victim started to drill holes in the bench, beginning with marked locations adjacent to the No. 1 Pit. The victim drilled one hole in the pattern directly under the highwall and began to drill a second hole. At about 7:00 pm, while moving overburden material, the other bulldozer operator observed the mast of the highwall drill operated by the victim shake violently and a large cloud of dust encompass the highwall drill. The other bulldozer operator attempted to contact the victim via a citizens band radio, but there was no response. The bulldozer operator, who was removing overburden adjacent to the highwall drill, overheard the other bulldozer operator attempt to contact the victim and looked in the direction of the highwall drill. The bulldozer operator stated he could see a cloud of dust in the area where the drill was located. The bulldozer operator left his bulldozer and proceeded to the highwall drill. Upon arriving at the drill, the bulldozer operator observed that the operator's cab had been severely damaged by rock. The bulldozer operators could only see the victim's arm extending from the operator's cab. The mine emergency technician, located on mine property, heard the attempt to contact the victim via CB radio and

traveled to the scene. He checked the victim for vital signs but was unable to detect a pulse.

The three blasting contractor employees that had previously marked the drill hole pattern were about 600 feet from the bench area. They noticed a dust cloud from the location of the drill, and informed the night-shift foreman, who was traveling to meet with them about another blast area. The night-shift foreman then proceeded to the accident site.

At 7:06 pm, the night-shift foreman called "911" for assistance. The rescue squad and the Kentucky Dept. of Mines and Minerals Rescue Team were dispatched to the scene. Company personnel attempted to rescue the victim using equipment on mine property. At 9:45 pm, enough rock had been removed from the cab to allow the county coroner to check the victim for signs of life. None were found and the coroner pronounced the victim dead. Recovery activities continued until 10:30 pm, when the victim's body was recovered from the cab of the highwall drill. The victim was transported from the mine site by the coroner.

Conclusion

The accident occurred because loose, unconsolidated material was allowed to exist on the highwall above the No. 2 Pit while drilling operations were in progress. Contributing factors to the accident included inadequate examinations for hazardous conditions on the highwall and the failure to comply with the company's ground control plan. The drill was positioned in close proximity to the highwall which substantially increased the victim's exposure to hazardous highwall conditions.

Extracted and edited from an MSHA Accident Investigation report by Fred Bigio.

Lack of proper guarding on crusher contributed to miner's death

Lack of proper guarding coupled with working on a moving crusher led to the death of a 63 year-old readymix worker in July, according to MSHA's final report on the accident.

MSHA cited the Ready Mix Co. after a dredge operator died in a machinery accident on July 14 in Muscatine, Iowa. Workers at the facility dredged sand and gravel from a pond, then pumped the dredged material to a rock boat where the sand was screened and removed to a settling pond. The remaining rock was crushed and conveyed to shore. The company sold its finished product to landscapers and for use as concrete aggregate.

The victim, 63, had seven years mining experience with Ready Mix. On the morning of the accident, the victim noticed that the dredge had been taking in wood from the pond. Sticks and branches had fallen into the pond after recent storms. The wood caused a problem because it clogged up the crusher discharge chute. As a common practice, workers would stand on the framework of

the Deco H2624A jaw crusher and remove debris while the crusher was running.

The victim and a co-worker had been removing wood debris from the transfer chute screen all morning. At about noon, they used the work boat to pick up floating wood. After lunch, they split up, with the victim going to monitor the crusher.

After an hour, the co-worker noticed that the rock boat had stopped sending material down the conveyor belt. He searched the rock boat and immediately saw evidence that the victim had become entangled in the crusher drive belts, but could not find his body.

Workers called rescue personnel and about a half hour later, they found the victim in the water, partially submerged under a pontoon on the northeast side of the workboat. He was pronounced dead at the scene from severe trauma injury to the chest and extremities.

Investigators concluded that the direct cause of the accident was a failure to maintain a proper guard on

the crusher while it was in operation. The company also failed to conduct daily workplace inspections or correct safety hazards. The accepted company practice of removing debris from the crusher while it was operating was also a contributing factor.

MSHA said that the unguarded crusher was a safety hazard and was "readily visible" to anyone entering the area. Nevertheless, the mine operator's logs showed that the crusher had been inspected daily for safety hazards. MSHA concluded that the operators failed to properly conduct daily safety examinations. The failure to properly inspect and to initiate corrective action also showed a lack of reasonable care constituting more than ordinary negligence, MSHA said.

Finally, MSHA cited the mine for a violation of section §56.14105 (Repairs or maintenance of machinery cannot be performed until all power is off and the equipment is blocked off against motion).

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Man Injured in Abandoned Mine

Facial reconstructive surgery will be needed for a man who plunged down an 800-foot deep mine shaft in Acton, Calif., on April 4.

At first, officials believed his injuries were minor but doctors determined that he will need surgery to repair damage to his right eye socket and the right side of his face.

According to the local sheriff's office, the victim and his 22-year-old son decided to explore the Black Jack Mine, an abandoned gold mine

near Angeles National Forest, on a Saturday afternoon. His son told authorities that he and his father were surveying the mine to possibly stake a claim with the Bureau of Land Management. They used a rope to rappel down the shaft from the built-in ladder which extended 400 feet into the mine, something they had done several times before.

His son climbed out but as his father climbed the ladder, it crumbled and he fell 150 feet onto a ledge. His

son went for help and more than 60 people responded. Rescuers mounted a major recovery effort. First, they reinforced the walls of the shaft and sent medical supplies down to him. Then they set up a rope and pulley system to bring him to the surface. It took six hours to free the injured explorer.

Reprinted from the April 17, 1998 edition of Mine Safety and Health News. Copyright 1998 by Legal Publication Services.

Another step in quest to end black lung disease

MSHA distributing booklet to coal miners on respiratory hazards faced on the job

The Department of Labor's Mine Safety and Health Administration (MSHA) has published a new booklet for coal miners on the health hazards of mine dust. Miners who have been overexposed to dust in the mine air may contract black lung, a debilitating lung disease.

"We must educate each and every miner and mine operator about the dangers, the causes, and methods of preventing all respiratory diseases common to mine workers," said Davitt McAteer, assistant secretary of labor for mine safety and health. "The more all in the mining community know about black lung disease and silicosis, including their effects on the human body, the more they will understand the importance of preventing overexposure to mine dust. During the past 10 years new miners and supervisors have entered the industry. Many of these workers have presumed that since progress has been made, black lung disease has disappeared. However, while much progress truly has been made, the disease remains a risk to today's

miners. This new booklet, which provides such vital information on the disease, is an important step in our efforts to eradicate black lung disease—now and forever."

MSHA inspectors will distribute the booklet, *Dust—What You Can't See CAN Hurt You!*, at underground and surface coal mines throughout the U.S. over the next several months. The 24-page booklet describes the sources of dust in the mining environment, explains how the dust affects the body, further explains black lung disease and describes how exposure to respirable dust can be reduced or prevented.

The booklet also includes a section on dust sampling fraud—how it can be detected and reported.

The distribution of the booklet is one in a series of many actions taken by MSHA in recent years to combat black lung disease among miners. Earlier this year, the agency established a dust fraud hotline that miners can use to report instances of

dust fraud in the mining industry. That number is 1-888-249-8223. MSHA also recently announced testing of a new continuous dust monitoring device, a "black box," that gives a continuous readout of current dust levels in the mining atmosphere. This continuous information allows miners and mine operators to make timely adjustments to reduce levels of respirable dust in the atmosphere, preventing prolonged overexposure.

Additional copies of the book may be obtained from the instructional materials department at the National Mine Health and Safety Academy in Beckley, W.Va., by calling 304-256-3257. The text of the booklet may also be found in the near future on MSHA's web site at www.msha.gov.

*Note:
The Booklet—"Dust—What You Can't See CAN Hurt You!" is now available via this site.
MSHA News Release No. 98-1112
Mine Safety and Health Administration
Contact: Rodney Brown
Phone: (703) 235-1452
Released Thursday, November 12, 1998*

Texas mine changes tire maintenance procedures after fatal accident

MSHA has cited a Texas metal/non-metal facility for an unwarrantable safety failure in a fatal explosion accident that occurred last April.

A 28-year-old service mechanic died on April 22, 1998, after a tire exploded in the main shop building in Comal County, Tex.

The company had ordered a Caterpillar 631 pan scraper taken out of

service for brake repairs. The victim and two other men were assigned to repair the scraper at the beginning of their morning shift. The victim had eight years experience at the operation but had not received Part 48 training.

The crew first removed the rear tire and wheel assemblies to access the brake drums and linings. Each

tire weighed about one ton, and had a diameter of about 90 inches. Inflation was set at 76psi. The left rear drum came off the tire easily but the crew could not remove the right drum despite using penetrating oil and driving wedges between the wheel and the brake drum flange.

After various attempts to remove the stubborn drum over five hours,

the supervisor decided to cut the brake drum off the tire. He requested a welder to come to the shop and cut a slot in the drum with a carbon arc air cutter but he couldn't penetrate the cast iron drum. The supervisor finally ordered the welder to switch to an acetylene torch. He climbed on top of the tire and cut one inch slots on each side of the drum. The crew then broke for lunch.

After eating, the victim and two men poured water on the drum to cool it down and began hammering on it in an effort to remove the drum. One man inserted a pry bar in the slot cut and as he began applying pressure, the tire exploded. The force

of the explosion could be felt up to a half-mile away. Pieces of the tire flew in all directions and damaged the shop and a nearby warehouse building.

The two crew men suffered serious injuries and were airlifted to hospital for medical treatment. Officials pronounced the victim dead at the scene.

After examining the scene, investigators concluded that the torch had transferred enough heat to ignite the oxygen within the tire, which created combustible vapors and increased pressure, causing the tire to explode.

MSHA said that the supervisor engaged in aggravated conduct constituting more than ordinary negligence

when he instructed a miner to cut the brake drum with an acetylene torch. The failure to assure safe work conditions constituted an unwarrantable failure to comply with a mandatory safety standard.

MSHA terminated the citation after the company changed its wheel maintenance procedures. It now requires tires to be dismounted and removed from the wheel before maintenance. It also installed a nitrogen tank so that workers can replace compressed air in tires with non-flammable nitrogen.

Reprinted from the November 27, 1998 issue of Mine Safety and Health News. Copyright 1998 by Legal Publication Services.

Undetected cracks in the roof caused fatal fall

MSHA didn't find any unsafe conditions in its investigation of the seventh fatal roof fall of 1998 and the 14th in coal; this time in Oceana, W.Va. Investigators concluded that invisible, undetected cracks in the roof of the mine weakened a section and it collapsed.

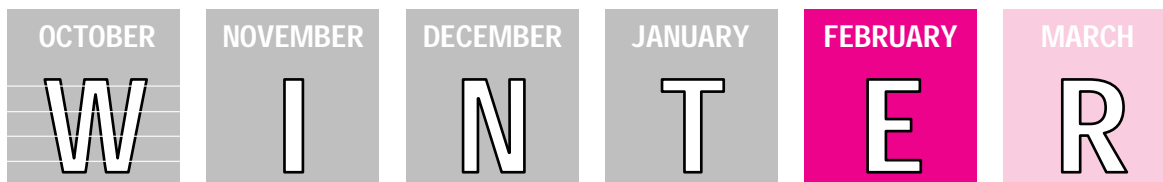
The victim, 47 years old with 27 years of experience, served both as president of the coal company and as a continuous mining machine helper. On June 12, at 7:00 am, the day shift crew began mining coal from pillar blocks using an alternating lift pattern. The mine produces about 1500 tons of coal per day from a continuous mining unit that is used in advance and retreat mining. Miners support the roof with roof bolts during advance mining and a combina-

tion of roof bolts and timbers during retreat mining. Around 1:00 pm that day, workers decided not to mine near the Nos. 1 and 7 entries because of adverse roof conditions. After mining the No. 35 and 36 pillarblocks, the operator moved the mining machine back and two workers prepared to set five timbers to support the roof. The victim walked into the area to help when suddenly a timber snapped. A section of the roof had fallen—12-feet long by 5-feet wide and 5-feet thick. The two workers avoided the fall but the victim did not. The crew immediately began rescue operations and freed the trapped man. The victim was pronounced dead on arrival at the hospital.

In the fall area, the mine roof consisted of sandstone mixed with about five feet of immediate shale roof. With the exception of several roadway timbers that were not set according to the roof control plan, workers followed the layout. The misplaced timbers didn't contribute to the accident, MSHA believed. Investigators concluded that prior to the fall, the roof didn't show any visible cracks though it was weakened. When miners began installing roadway and breaker posts, the roof fell suddenly, and without warning.

Reprinted from the September 18, 1998 edition of Mine Safety and Health News by Legal Publication Services.

WINTER ALERT reminder:



Coal combustion byproduct haulback today

William E. Giles Freeman United Coal Mining Co.

Coal mining companies have been utilizing coal combustion byproduct (CCB) backhaul operations as a marketing tool for several years. A backhaul operation allows coal to be shipped to the customer and CCBs to be returned to the coal shipper. The CCBs may be returned to the mine where the coal was produced or to a central location where the CCBs are distributed to mines, mined land reclamation projects, or disposal areas. Backhaul operations may give a coal mining company a competitive edge in an adverse marketplace. The customers that are interested in backhaul operations generally do not have longterm site-disposal facilities or have a limited volume in existing facilities. The reason for backhaul contracts is entirely economical. The cost of returning the CCBs to the mine that produced the coal or to another mine operated facility is normally less than the cost of building an on-site disposal facility or hauling the CCBs to a commercial landfill. CCBs are large-volume low-value materials. Although they may possibly be reused, the cost may well be higher than the cost of using new materials. Some states have recognized that CCBs generally do not pose any threat to the environment and have provided incentives to use the CCBs as construction materials and in other innovative ways. Some alkaline CCBs are used for sewage sludge stabilization. Backhauled CCBs may be beneficially used for reclamation, but the volume of CCBs often exceed the demand and the remaining CCBs are commonly landfilled.

As backhaul operations gain popularity with coal customers, it is becoming necessary for the mine operator to deal with various types,

quantities and properties of coal combustion byproducts. Coal market conditions may dictate the amount of coal sales that will be used to offset the CCBs shipped back to the mine. Whether the CCBs are disposed of or used for beneficial operations has an effect on the handling methods. CCBs may compete with coal refuse for available space. Disposal areas at mine sites must be properly permitted and constructed. This process is time consuming and expensive. CCB volumes may be seasonal and it may be difficult to handle the traffic at peak times.

There can be wide variations in the physical and chemical characteristics of the CCBs produced at different sites. A coal mining company with a number of backhaul customers will have to be able to handle and dispose of the different types of CCBs. Their volume, characteristics, delivery means and schedules must be taken into account when planning the backhaul operation. The effects of one type of CCB on the others may require special handling. Before entering into a backhaul agreement, samples of the CCBs are analyzed for chemical constituents and leaching potential. When CCBs from different sources are handled at the same facility, composite samples are analyzed in the same manner. Once the CCBs reach the mine, the operator must determine the most cost-efficient way to handle the CCBs. Some CCBs have been used for mine reclamation, but the volume of CCBs received may be much larger than the amount needed for reclamation. Most CCBs contain some alkalinity. This makes them potentially useful in mine reclamation. In surface mines, the rock overlying

the coal is removed to expose the coal for mining. After the coal has been mined, the CCBs may be placed against the exposed coal seam or on the mine floor to help control acid-water generation after the waste rock has been returned to the pit. At underground mines, CCBs may be mixed with coal processing refuse or placed over refuse for the same purpose. Even when reclamation is not the purpose, it is not uncommon for coal processing wastes and CCBs to be mixed or, at least, placed in the same disposal site. There is a possibility that some CCBs may be used for structural fill in CCB mine refuse disposal site construction. Some CCBs have been injected into abandoned underground mine works to help support the mine roof and prevent subsidence, but this is expensive and not yet common.

Freeman United Coal Mining Company has been engaged in CCB backhaul operations since 1991. Since that time we have handled over two million tons of CCBs at several locations and we presently have about ten customers using haulback contracts. Not all of our mines are suitable for CCB disposal, so sometimes they are delivered to one mine and the coal is shipped from another nearby. Flexibility has been built into our operations to allow for changes that may occur during the term of the contract and for new contracts that may be secured. We have considered many different methods of handling and disposing of CCBs. We utilize CCBs constructively whenever possible, but still have a great deal left over. We understand that there are concerns over the longterm effect of CCBs on the environment and we

constantly monitor for changes. Nonetheless, we believe that CCBs will be benign or beneficial in most applications.

This brings us to our need for organizations such as the Center for Applied Energy Research. It is important for us to cooperate with these institutions to study the uses and effects of CCBs. It is important that these institutions remain impartial and open to all possible conse-

quences of proposed uses, good and bad. The study and characterization of CCBs has given us insight into their behavior and is useful in planning our operations. Observation of weathering of CCBs has given us information on their stability and ultimate fate in the environment. We need this kind of information for our own use, but it is also important that this information reach the regulatory agencies and the public. With the

knowledge that we have gained from the research into CCBs, we can now make informed decisions as to their suitability for our purpose.

Bill Giles has been with Freeman United Coal Mining Company since 1976 and has worked with Coal Ash Handling And Disposal since 1990.

Reprinted from the Vol. 8, No. 5, 1997 issue of CAER.

These workers' little cubicles are really beneath them

By Linda Perlstein—Los Angeles Times—Washington Post Services

To get to the office, U.S. government employees in Butler County, Pa., descend 252 feet into an old limestone mine.

In 1902, when dynamite was first blasted into this gently sloping hill and the limestone carted away, when the only lights were mounted on hard hats, and when dust and clay thickened the air, who could have imagined this:

Dilbert calendars. Excel training. "Look Who's 40" banners. And cubicle after cubicle after cubicle.

In a vast, windowless workspace tucked 252 feet under a tree-studded mound in western Pennsylvania, U.S. government employees process retirement benefits claims and store payroll and pension records for every person who has ever worked for Uncle Sam. In some ways this federal office is just like those in Washington; in other ways it's eerily different.

Many of the 360 accidental spelunkers who work here found the cave bizarre at first. Every supervisor has a story about a job applicant who, in mid-interview, said, "I can't do this."

"When I first came here, it was kind of scary," said Melanie Preston, 36, who reviews applications for dis-

ability benefits in [a] cubicle decorated with lei-wearing pink flamingos. "I didn't see any sunshine. I thought the walls were going to cave in on me. I still think the walls are going to cave in on me."

Lori Hepler, 35, a file clerk, said, "At first I was afraid I would get claustrophobia. Then you get down here and walk around and see how big it is, and the claustrophobia thing went out the window." So to speak.

The walls and ceilings have been left as rocky as they were when blown out, although they've been smoothed a bit by latex paint. There are holes where dynamite was crammed in, and the occasional drill bit can still be found stuck in rock. Fire extinguishers and flashlights are hitched to the wall at regular intervals. In accordance with mine safety laws, young children and open-toed shoes are prohibited. Hydrometers atop file cabinets tick off humidity readings.

Antiseptic fluorescent lights are suspended from the limestone ceiling alongside miles of color-coded casings—gray for computer cables, red for sprinklers, and white for air conditioning, as well as silver air ducts.

Processing forms, not limestone

Underneath, workers tap away at computers, processing hundreds of billions of dollars in retirement benefits at the Retirement Operations Center.

U.S. Steel operated the mine until 1953, sending the limestone to steel mills in Pittsburgh. Since it closed, space in the mine—thought to be the largest facility of its kind in the country and navigated by a 70-mile network of tunnels—has been leased out by National Underground Storage Inc.

The government uses about 225,000 square feet for the retirement services and an additional 65,000 square feet for the Federal Investigations Service, which oversees background checks. The records were moved from the overstuffed Pension Building in Washington, D.C., in 1961 because the cave offered low humidity, secrecy, room for expansion, and protection from nuclear fallout. And the rent is cheap. \$10 a square foot, one-third of what similar space would cost in Washington.

Before the retirement offices were renovated a decade ago, the furniture was government surplus and the floors uneven. Now the ground is

level, with islands of standard-issue pastel carpet in the office areas. When employees were allowed to choose the wall colors in each room, they picked creamy lilac, orange, even key lime green. But after official consideration of light refraction this is the government, after all—everything was repainted an almost-white gray.

In eight mammoth rooms, 300 million records are stored in 100,000 drawers in file cabinets stacked 10 high. Each row, and each drawer, bears a handwritten label. Gardener to Garfield, Hatcher to Havlena.

Computers in caves

In the mainframe computer room, where machines clickety-clack between

cave walls, the primitive and the modern collide in a Flintstones-meet-Jetsons juxtaposition.

Butler County itself is an unlikely spot for a federal office. Roads curve through rolling hills and farmland, and driving directions are more likely to refer to trees than street names. Boyers, 55 miles north of Pittsburgh, is on the fringes of steel country, though most mills have closed.

This being the kind of place where people rarely pull up roots, many workers have a long family history under this hill. Glenda Davis, a 14-year employee who supervises the benefits phone line, grew up across the street from the mine, where her grandfather drilled for dynamite sets

and her father scooped rock into carts.

"I often wonder if dad came in here and was walking through here. I often look at things and wonder if he was digging here," she said

The mine is unmarked and invisible from the road. Employees park in a lot and walk down a ramp into the hillside, wind smacking them in the face. The tunnels are breezy and cool—about 58 degrees, just wide and tall enough for two semis. Much of the labyrinthine tunnel system that winds through the former mine is developed into a street system, with stop signs, yellow-striped walkways, and parking spaces for the lucky few allowed to drive in.

MSHA calls attention to problem with emergency breathing device

The Department of Labor's Mine Safety and Health Administration (MSHA) is alerting the mining community about a potential problem with certain self-contained self-rescue breathing devices typically used by underground miners. Some self-contained self-rescue units (SCSR's) manufactured by the CSE Corporation have been found to emit higher-than-normal levels of carbon dioxide in the air supplied to the user.

MSHA emphasizes that these devices should still be used in an emergency. The units will supply oxygen and provide the wearer with protection from harmful gases in the mine air. The higher-than-normal levels of carbon dioxide in the air supplied to the user may cause users to breathe faster and more deeply while using the device.

"It's important that all in the mining industry who use these devices be aware of the problem they may encounter," said Davitt McAteer, assis-

tant secretary of labor for mine safety and health. "Users who are unaware of the problem, if it occurs, may become frustrated with the device during a real emergency and discard it rather than use it to escape. That mistake could be fatal. All miners should know that once you have donned an SCSR, you should never remove it until you are in fresh air."

The devices which have been found to have the problem are some CSE SR-100 Self-Contained Self-Rescuers manufactured by CSE Corporation bearing the MSHA/NIOSH approval number TC-13F-239. SCSR's are intended to provide the user with one hour of fresh air in case of an emergency such as a fire or explosion underground which may release toxic gases into the mine air.

"We do not yet know how many of the breathing devices have the problem," said McAteer. "We are continuing to investigate the matter

carefully and will keep the mining community informed "

CSE Corporation has suggested that the devices most likely to have higher-than-normal carbon dioxide levels are those that have been exposed to excessive shock and vibration over an extended time.

Both MSHA and the National Institute for Occupational Safety and Health (NIOSH) are conducting laboratory tests to determine the cause of the problem and to identify accurate methods to identify individual breathing devices that have the problem.

A letter being distributed to miners and mine operators about the problem with certain CSE SR-100 self-contained self rescuers can be found on MSHA's home page on the World Wide Web at www.msha.gov.

Reprinted from an MSHA press release dated Thursday Dec. 3, 1998. Philadelphia, Pa. 19104, Office of Information, Mine Safety and Health Administration--USDOL, Contact: Rodney Brown, Phone:703-235-1452

Innovative use of video equipment enhances WIPP mine maintenance

An underground scaling machine removes loose rock from walls and ceilings in the WIPP underground, assuring safe working conditions. A camera head is affixed to the boom, and the operator is able to view the action on a monitor screen. Mine operations personnel at WIPP are using a video system adapted to a mining machine for safer, more efficient scaling of walls (ribs) in the project's underground facility. Scaling of the mine walls is a routine part of ground control efforts in the WIPP underground, ensuring a continued safe environment. Mining technicians felt that scaling operations could be accomplished more efficiently



and effectively if the operator could actually see the chisel tip from his posi-

tion on the mining machine. As a result, a video system was adapted to the scaler, adding greater visibility and safety for the operator. Carlsbad Area Office Manager George Dials sees the innovation as just one more example of why WIPP has retained its impressive safety record: "Safety and efficiency are keys to the success of the WIPP program, and WIPP employees continuously respond to the challenges by devising better ways of doing business."

For more information contact Dan Balduini at 505-234-8658.

Joseph A. Holmes Safety Association Scholarship Program

Secretary/Treasurer, P.O. Box 4187,
Falls Church, VA 22044

Chairperson:
Sam Vancil
(618) 439-9111

Vice Chairperson:
Bill Moser
(304) 293-4211

PURPOSE: The Joseph A. Holmes Association endeavors to promote health and safety within the mining industry. We believe that providing financial aid to students in the pursuit of education related to mining safety will result in safer mines and healthier environments within the mining industry. To that end, we have instituted this Scholarship for Mining Committee.

SCOPE: This scholarship program shall be open to persons currently employed or who are pursuing careers in the mining industry, safety and health fields. Scholarship awards are available in the following categories:

1. High school graduates (or "graduating seniors")
2. Undergraduate students currently enrolled in a college or university.

3. Graduates of a college or university.

APPLICATION REQUIREMENTS:

Each applicant must satisfy each of the following criteria:

1. Must have been accepted by an accredited college or university or currently enrolled at an accredited college or university in a degree program in mine safety, occupational or industrial health and safety, industrial hygiene, safety management or other related safety programs.
2. Must have taken ACT or SAT examinations, if you have been out of high school for less than 5 years. (Scores must be provided by the high school guidance counselor, principal, or college registrar).
3. Must complete the Financial Disclosure Information section to verify financial status and expenses of all persons living in the applicant's household.
4. Must provide a transcript of grades for the last 3 years of completed education (i.e. high school or college level).
5. Must submit a 100-200 word essay on "why I want to study for a degree or

pursue a career in the mine safety field."

6. Must complete the Survey of Extracurricular Activities.

7. Must submit two to three letters of recommendation (one academic, one personal, and one from the mining community, if able).

8. Must complete the application and submit it to the Joseph A. Holmes Scholarship Program, c/o Secretary/Treasurer, P.O. Box 4187, Falls Church, VA 22044.

Applications must be submitted to Scholarship for Mining Program no later than March 2, 1999. The mailing address shall be advertised in the October, November, and December issues of the Bulletin. The committee Chairperson shall convene not later than 30 days prior to the date of the Annual Meeting of the National Holmes Safety Association each year for the purpose of selecting the successful applicant(s). All applicants will receive consideration without regard to race, color, sex, age, national origin, religion, or disability.

THE LAST WORD...

Human kindness has never weakened the stamina or softened the fiber of a free people. A nation does not have to be cruel in order to be tough.—Franklin Delano Roosevelt

Patience is power; with time and patience the mulberry leaf becomes silk.—Chinese Proverb

Destiny is no matter of chance. It is a matter of choice: It is not a thing to be waited for, it is a thing to be achieved.—William Jennings Bryan

The art of being wise is the art of knowing what to overlook.—William James

The most thoroughly wasted of all days is that on which one has not laughed.—Chamfort

When I was a boy of 14, my father was so ignorant I could hardly stand to have the old man around. But when I got to be 21, I was astonished at how much the old man had learned in seven years.—Mark Twain

Health is the condition of wisdom, and the sign is cheerfulness,—an open and noble temper.—Ralph Waldo Emerson

One must be poor to know the luxury of giving.—George Eliot

Wrinkles should merely indicate where smiles have been.—Mark Twain

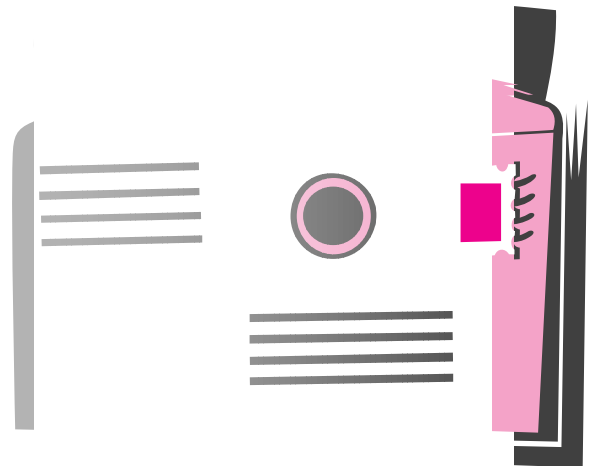
NOTICE: We welcome any materials that you submit to the Holmes Safety Association Bulletin. For more information visit the MSHA Home Page at www.msha.gov. We **DESPERATELY** need color photographs suitable for use on the front cover of the *Bulletin*. We cannot guarantee that they will be published, 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.

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**

Please address any comments to the editor, Fred Bigio, at the above address or at: MSHA—US DOL, 5th floor—EPD #535A, 4015 Wilson Blvd., Arlington, VA 22203-1984.

Please phone us at (703-235-1400).



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*We are short of articles on metal/quarry safety and welcome **any** materials that you submit to the Holmes Safety Association Bulletin. 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:

- ***Mar. 23-27, CONNEXPO-CON/AGG '99, Las Vegas Convention Ctr., Las Vegas, NV***
- ***Apr. 15-17, SME/CAS Spring Conference, Marriott Griffin Gate Resort, Lexington, KY***
- ***Jun. 9-15, 5th World Mining Technology Exhibition/Congress, Dusseldorf, Germany***
- ***Jun. 20-25, Pneumatic and Hydraulic Conveying Systems Conference, Davos, Switzerland***
- ***Sep. TBA, Bluefield Coal Show, Brushfork National Guard Armory, Bluefield, WV***

