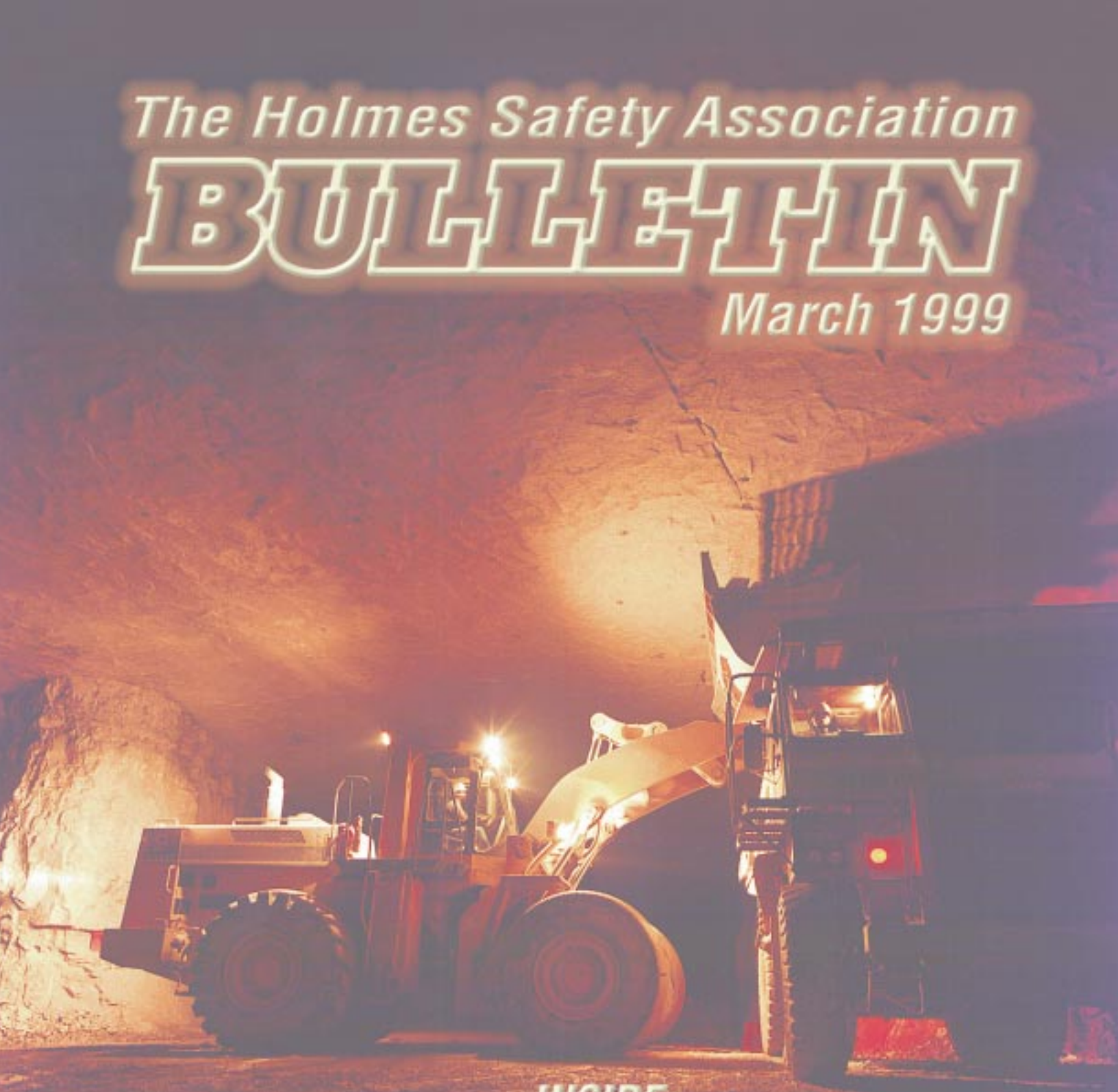
The Holmes Safety Association BULLETIN

March 1999



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HSA Bulletin *March 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: This outstanding photo was sent to us by David White, Safety Director for Hanson Aggregates East. The shot was taken by Leslie McGuire on Nov. 3, 1998 at Hanson Aggregates East, Harding Street Mine. Pictured in the photo is a Komatsu WA-600 loader, operated by Richard Calvin, dumping limestone into a Caterpillar 769-C 35-ton haul truck operated by Carl Eaton. The underground mine at Harding Street produces one million tons of crushed limestone each year. 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

DRILLING AND BOLTING: Stable mates

Mike Woof and Kyran Casteel review bolting advances

Several manufacturers have been putting considerable investment into developing bolting techniques to meet growing customer demand from the hard rock mining industry. This is a substantial business and there are a large number of firms operating in the sector, so we have tried to look at a diverse cross-section.

Compact package

Atlas Copco's recent order for machines from the new Kanowna Belle underground mine near Kalgoorlie in Australia includes one of the firm's Boltec 335SH machines. The bolter is particularly interesting, as it will be fitted with one of the powerful new Cop 1432 rockdrills. This rockdrill is compact in design but packs a big punch, with some 14 kW of drilling power on tap. Replacing the older 1032 drill, the 1432 unit features a new type of piston and a double reflecting damping system for better productivity. This design also incorporates some of the latest developments in percussion and shock wave technology, further boosting its penetration rate for use in rock bolting applications. Because it is more compact than previous drills, Atlas Copco says, the 1432 offers big hammer performance from a unit that can work fast in bolting applications where space is tight. The drill also has variable impact energy and frequency control, for use in different types of rock or heavily faulted conditions. Despite its high output, Atlas Copco says the 1432 will be long-lived and have minimum maintenance requirements even in tough working conditions. The flushing head is made from stainless steel to give long working life, while the mating surfaces, side bolts, shank adapter, driver, and front bushing are all pressurized by lubricating air to boost operating life.

Mini system

Outokumpu Mining is now employing a novel bolting system at its Orivesi gold mine. The firm drills around 8 km of bolt holes/year for SplitSet bolts using a Tamrock Minirobolt but because the rock is both very hard and highly abrasive, the working life of the 25 mm diameter steels used initially was short. During 1997, Outokumpu tried out a new approach and fitted a powerful Doofors H528 drill onto the Minirobolt rig, switching to 28.6 mm diameter drill steels with S32 threads and using conventional button bits with conical joints. After testing the new configuration, Doofors changed the bearing system within the drifter and the company says that drilling productivity has increased considerably over the previous rig layout as a result.

But is it secure?

Where conventional bolts have been used for rock support over a long period, the level of support given can be hard to determine. Because of this, Geodynamik recognized the need for a tool that can check the security of fixing and developed Boltometer for the job as a result. This nondestructive tool can check cement or resin grouted bolts using piezoelectric principles and analyses the results electronically, which the firm claims gives a high accuracy of reading. The lightweight, battery-powered unit features a piezoelectric transducer that sends compression and flexural waves through the bolts. Depending on the condition of the grout, these waves move at different speeds through the bolt and the unit is able to read the reflected waves and process the data, to give an indication of the strength of the grouting. Results are displayed in a simple ABCD format (the Boltometer can also be connected to a printer for hard copies) and the unit is said to be easy to use. Geodynamik says that optimum results are obtained when the bore hole diameter is between 25 and 40 mm, bolt diameter is from 20-30 mm, bolt length is at least 0.5 m and when the length of the grouted section is a maximum of 6 m.

Bolting by Jama

Although Atlas Copco and Tamrock dominate the market for mechanized hard rock bolters, the innovative Swedish company Jama Mekaniska is also active in the field. The company has delivered a prototype rock bolt insertion unit to Boliden's Krishneberg mine in northern Sweden. The machine is guaranteed to install 90 bolts during a five hour shift, which also includes a two kilometer move. In practice, Jama told *World Mining Equipment* (WME), the unit has achieved a best rate of 197 cemented bolts. A similar machine has been delivered to Kiruna. The next step

in product development will be to incorporate a drilling unit.

Mousquetaires de la roche

French engineers built the MTH machinized roof bolter in the 1950s and Secoma launched the bolting turret in 1963, Hardly surprising then, that the Lyon unit is a significant contributor to the Tamrock product range in 1998 with the following bolting jumbos:

- Quasar 1B (single boom bolting jumbo),
- Mercury 1B,
- Pluton 1B and lPSB, and the
- Hercules 1B and 1B Low.

Up until 1995 Secoma's bolting system had been supplied only on the large Pluton 1B jumbo for weight reasons. This machine can install 1.52-3.05 m Split-Set, Swellex and mechanical bolts, with resin injection, cement cartridge or bulk cement injection. The magazine holds 10, 12 or 15 bolts. Pluton requires a tramming section 3.6 m wide by 2.9 m high and can bolt sections up to a maximum width of 8 m and a maximum height of 6.9 - 7.75 m. The bolter can also be equipped with the more recently introduced Screen Handler described in WME a year ago. The PSB version is fitted with a platform for screen installation.

Piezo delivery man: the hand-held sensor uses piezo electrics to give a quick answer on the condition of bolt grouting

The introduction of the wider and stronger Series 2000 version of the Mercury in 1995 enabled Secoma to fit a bolting system to this smaller size rig. The Mercury 1B magazine takes 10, 12 or 15 mechanical, Split-Set and Swellex bolts of 1.52 - 2.44 m and the bolter will work to maximum width and height of 7 m and 6.4 m. An early customer was Philex in the Philippines, which ordered four machines off the drawing board. These were the first Mercury bolters able to install cement cartridges: Philex had previously been manually inserting locally handmade cement cartridges. The bolters can also inject resin but the bulk cement injection unit is too heavy for this jumbo. The minimum tramming section needed is 3.2 m (w) by 2.5 m.

Now, as mentioned in our December 1997 issue, the team at Meyzieu has managed to fit the bolting system to the even smaller Quasar, which will tram in a 2.75 m(w) x 2.35 m section. The Quasar 1B can place the same range of bolts as the Mercury, with resin or cement cartridge grouting, to a maximum width of 7 m and a height of 5 m. The first Quasar bolter was delivered to Homestake in the USA which operates a substantial fleet of small Tamrock drilling jumbos.

There are two bolting versions of the new Hercules jumbo, the 1B and 1B Low. The basic 17,5 tonne jumbo specification is the same as for the equivalent face drilling versions described in the Face drilling article. However, the ZRU 1100 B boom is equipped with a model TUC bolting head that handles 1.52-3.05 m drill steels and is fitted with a bolt magazine for 10, 12 or 15 bolts - depending on the bolt in use. The wrench is a Secoma RHR 40 series with maximum torque of 25 mdaN and the rock drill is a Hydrastar 200B with impact power of 6-10 kW.

The standard Hercules 1B can bolt in drift heights from 4.5 m while the 1B Low can work in drift heights from 3.5 m. Both can use resin injection or cement cartridges with conventional bolts and also install friction bolts such as Ingersoll-Rand Split Sets, when using an HH 200 impactor or Atlas Copco Swellex bolts when fitted with a water pressure intensifier.

In control

Atlas Copco says it developed the Swellex system to counter the problems of accurate bolt testing and bolt life. The company claims that Swellex provides a higher level of rock reinforcement than other bolting techniques because it can be controlled and adjusted periodically. The standards and regulations covering rock reinforcement are diverse, relating to a wide range of areas, such as minimum bolt thickness, grouting method and installation lengths, but Swellex is said to provide an easy answer to these complex rules.

According to Atlas Copco, Swellex bolts are easy and quick to install and offer immediate full-column support. The Swellex system uses high-pressure water expansion to deliver an immediate radial mechanical lock, with axial friction providing strength along the entire bolt length. And because these bolts are quick and easy to install, Atlas Copco says that the Swellex concept also allows for high productivity.

But the most important feature of Swellex is the high controllability, according to Atlas Copco. These units can be tested quickly, safely and repeatedly, by simply connecting the same pump used for installation and then repressurizing. Once the original installation pressure is reached, the bolt is once again secure (and if no extra pressure is required, then the bolt has still been providing full support). This versatility means that

Swellex bolts can be tested and adjusted (if necessary) at any time after installation.

Although Swellex is comparatively inexpensive, the system also brings the user higher levels of safety, installation speed and productivity, According to Atlas Copco, the use of Swellex can make substantial cuts in rock reinforcement costs compared to conventional pattern bolting. With traditional pattern bolting, up to 50% of the bolts installed may not be fully functional, considerably boosting installation costs. With Swellex, there is no need to overdimension any bolts Atlas Copco says, as the dimension of the Swellex-type bolt is assured as soon as it is pressurized and can also be adjusted at a later point in time. To further boost versatility, Atlas Copco has made Swellex suitable for a wide range of applications and now offers a range of corrosion-protected versions, stainless steel bolts and a connectable system.

Security services

According to Tamrock, manual cable bolting is a thing of the past due to the recent improvements to bolting machines and the firm is confident that its new mechanized bolters can set performance standards. Timo Virtanen, product manager for rock reinforcement products at Tamrock, explained, "It's not only for safety reasons that you use bolting, it also reduces ore losses."

With this in mind, the company is keen to boost its sales of bolting systems in room and pillar mining in particular, The technique allows the pillars to be narrower, which in turn increases the amount of material that can be extracted from a particular area in a mine and can make a major improvement in profitability, The company has carried out extensive testing and has compiled impressive figures to back up its claim, Without cable bolts, ore losses were generally in the order of 20% while waste dilution would be up to 35%. Assuming an excavated tonnage of 48,654 tons, the production value of the stope in the mine under test was around US$ 1,320,100. Where cable bolting was used, ore losses could be reduced to just 10%, with waste dilution of 25%, With the same excavated tonnage of 48,654 tons, the slope's production value was around US$ 1,523,300, Even taking into account the cost of the bolts, this allowed a cost benefit of around US$ 141,900/stope using the bolting technique. In one Finnish mine, Mr. Virtanen said, an improvement in waste dilution of just 1 % brought a reduction in operating costs of around 2 million FIM/year.

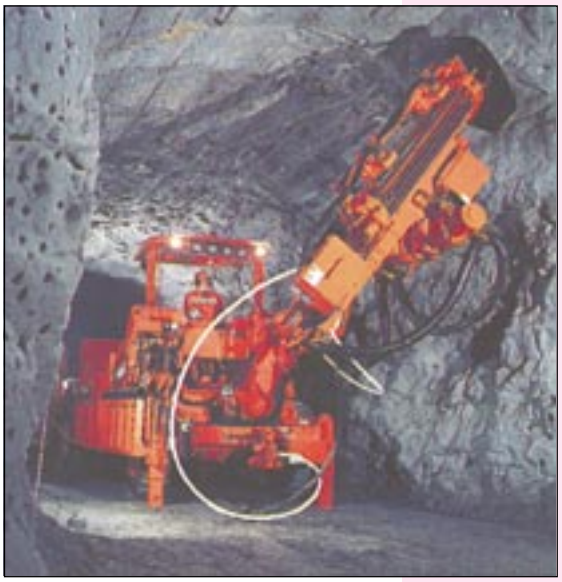
Because rock support can play such an important role, Tamrock has redesigned its Robolt and Cabolt models to boost their working abilities. Both of the Cabolt machines share similar features such as the TRB 60 booms, 1 tonne cement capacity, cable feed, grouting system, modular bolting head and TMS control package. But the H520 model is mounted on Normet's TC200 carrier, while the bigger H530 uses the Normet TC300 carrier, allowing a larger working envelope. Tamrock's bolting head consists of long hole drilling, cement hose feeding and cable bender/cutter units. The drilling part of the head uses the LF 600 cylinder rope feed, RC 600 rod changer and HL 500S rock drill.

The same modular design approach has been taken with the Robolt machines, the smaller H320 is mounted on Nommet's TC200 carrier, while the more powerful H330 uses the much larger TC300 carrier. Tamrock's ZRU 707 boom is fitted to the H320 and this machine can use the firm's BH15-30 bolting heads, while the H330 gets the ZRU 1407 boom and can handle the BH15-60 bolting heads. The HL300S rock drill is the standard fitting for both Robolts, although the more powerful HL500S (as used in the Cabolts) can also be selected if required. The Cabolt and Robolt ranges also now use telescopic feeds for the drilling system and Mr. Virtanen said that this design is more efficient than the chain feed that was used previously.

The control system for the revamped Cabolt and Robolt rigs is also new and features a high degree of sophisticated electronics. But the concept is based on proven technology: Mr. Virtanen explained, "We've used electric over hydraulic systems for more than 10 years, they're very reliable and this also means we can have a decentralized hydraulic system. "

Because of this latter feature, the new Cabolt and Robolt machines have fewer hydraulic hoses than would normally be expected (60% less in the case of the Cabolt models and 40% less for the Robolts), a feature that considerably reduces maintenance requirements.

Modern mines have an increasingly high level of automation and the bolters have been designed for operator or remote control. The TMS instrumentation system is a key factor in the higher bolting accuracy and Tamrock has developed three versions of the package for its Cabolt and Robolt machines. TMS D is the simplest and shows the operator the hole direction, while TMS DD also shows hole depth, cement hose depth, cable depth and the cumulative depth values. The TMS DDS is



Cable guide: Tamrock's sophisticated TMS control system allows the new Cabolt H530 (and its recently revised Robolt siblings) a higher level of accuracy than previous machines

the most sophisticated system and displays penetration rate and average penetration rate values, in addition to the features available on the other packages.

The Cabolt and Robolt machines also have a number of other redesigned features and Mr. Virtanen said, "We have a new cement feed system."

In the past, the cement hose was fed from the reel motor but this means that as the feed rate changed as the coiled diameter reduced. But the company now feeds the hose from the head, so that the rate remains constant throughout.

The two Cabolt models can handle plain steel strands or bulb anchor types with lengths of up to 25 m and normally use 15.2 mm diameter cable, allowing far greater loads than conventional re-bar type bolts. Using the bulb anchor design allows shorter lengths of cable to be used, which in turn makes considerable cuts in drilling and bolting time. And as the steel strands use an open design, this improves the efficiency of the bonding between the grout and the hole sides and is said to considerably boost the relative strength per meter. If the required bolting length is less than 0.8 m, Tamrock says that the bulb-type bolt should be used as this only needs to be 0.5 m long to give sufficient strength. But the bulb anchor cable does have some drawbacks as it is more costly and cannot be wound as closely onto the machine's reel as the conventional cable.

The two Robolt models can use the most commonly available bolt types; pretensioned resin grouted, cement grouted, cement grouted-wedge type, Swellex, expansion shell, and Split-Set. Because of the modular design of the bolting head, the machines can be quickly adapted to cope with bolt lengths can range from 1.4-6 m and bolt diameters from 16-39 mm. This wide range of bolt types and sizes adds to the versatility of the Robolt models, which are able to work in tunnel heights from 2.85 m right up to 12.4 m.

Keep in line

Tamrock has not just concentrated on developing sophisticated machinery as the firm has also introduced an effective, low cost centralizer system for re-bar bolts (this has already been patented). Mr. Virtanen explained how the new centralizer can boost bolt life, "It keeps the bolt in the middle of the hole and this gives better protection against corrosion." He added that the new centralizers are easy to install by hand, as they can be quickly slipped into place before each bolt is inserted. Different sizes are available, for 20 mm diameter bolts in 30-35 mm holes and 25 mm bolts in 35-51 mm holes.

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River wash to flush out burnt mine

By Aaron Porter of Grand Junction, Colo.'s ***The Daily Sentinel***

Somerset, Colo.- To salvage costly setbacks to its mining operations, Oxbow Mining Inc. plans to flood the Sanborn Creek Coal Mine with river water.

Oxbow sealed the mine after detecting unusually high levels of carbon monoxide on Jan. 26, indicating a fire in underground coal beds. The fire ignited methane gas in the mine two days later, blowing a hole in a sealed portal that scattered rubble on a train 50 feet away.

The fire appears to have started near the longwall section, Wright said. Oxbow started using a multimillion dollar longwall mining machine last August, allowing miners to produce about 10,000 tons of coal per day until the shutdown.

The mine's atmosphere is now inert, stable enough to allow drilling into the its lower chambers, mine manager Walter Wright said. The oxygen level will not support combustion, he said.

Miners worked for days to build an access road to the remote drilling site on the mountain above the mine.

"The road up the mountain was so steep we had to drag a truck-mounted drill rig with a bulldozer," Wright said.

Drilling started on Wednesday, [February 3] but crumbling underground rock has slowed operations, Wright said. Oxbow expects to complete the well Feb. 10, he said.

Officials hope to flood the mine to quell the remains of the blaze, Wright said. Pumps will carry water from the North Fork of the Gunnison River to the mountain-top well.

"We're going to inundate the entire area with water, and when the fire goes out or is under water, we will attempt to re-enter the mine," Wright said.

After miners re-enter the tunnels, Oxbow plans to pump the water back into the river. Settling ponds should remove salts and sediment, leaving the water as clean as when it was pumped from the river, Wright said.

Pending approval from the U.S. Mine Safety and Health Administration, Oxbow plans to start recovery operations in March, Wright said.

Reprinted from the February 6, 1999 issue of the Grand Junction, Colo. ***Sentinel.***

Keeping customers happy—and alive!

A challenge to mine operators

by David T. Couillard, Executive Committee Member

You've all read the fatalgrams:

- A 60 year old foreman who was employed by a real estate company drove a small dump truck into the plant yard for a load of sand. The front end loader operator had loaded the truck earlier in the day, but was momentarily not available for the second load. The victim backed his truck to the stockpile and began to load by hand (shovel). The stockpile, which was approximately 60 feet high, sloughed while he was shoveling and he was buried.
- A contract truck driver was fatally injured when he fell from the top of a tractor-trailer rig. A security guard stated that while waiting for the shipping department to open, the truck driver got out of his truck and began inspecting it. Later the security guard saw the truck driver on top of the tanker opening the center hatch cover. After the shipping department opened and the driver did not move his truck the security guard checked and found the driver lying beside the trailer.
- Two customer truck drivers were standing at an intersection outside their trucks while they were waiting to be loaded, when they were run over by a 35-ton haul truck. One of the truck drivers was severely injured and the other truck driver was fatally injured.

In today's economy, a high priority for your business is to be customer driven. Being able to respond quickly to satisfy customer demands keeps you ahead of the competition. Unfortunately, in the instances described above, mine operators failed to meet an even higher priority: ***keeping their customers alive***.

Of the 51 people who lost their lives as a result of accidents at metal and nonmetal mines in 1998, 17 of them were not employees of the mines. Six of them were truck drivers—either contract haulers or customers picking up purchased material.

Truck drivers at mines are most at risk when they get out of their trucks. When such factors as long lines at load out facilities cause delays, drivers become ever more likely to leave their trucks and expose themselves to hazards.

Mine operators seek to inform truck drivers by providing hazard training at the mine office, gate, or scale house, and by posting signs. Among other things, the signs warn regulate speed and traffic flow, and often warn drivers to stay in their trucks.

In recent years, Material Service Corporation, a major aggregate producer in the Midwest, has noticed a disturbing trend in drivers at their quarries: many of them cannot read or write English. Apparently, in an era of full employment, a black market has arisen for Commercial Drivers Licenses (CDLs). While being English fluent is supposed to be a prerequisite for earning a CDL, it has become increasingly apparent that many drivers are not. In the Chicago area where several Material Service quarries are located, a truck driver's language is just as likely to be Spanish, or even Polish.

To combat this problem, Material Service has posted "trilingual" signs. The photographs in this article were taken by Randy Mucha, Safety Director, Material Service Corporation, at the Romeo Quarry in Romeoville, Illi-

nois. The message, "All truck drivers —You are not allowed to exit your vehicles while on mine property," is repeated in Spanish and Polish, and one of the signs includes an illustration to reinforce the message—and to reach drivers who cannot read any of the three languages.

Randy Mucha and his colleagues are always looking for better ways to inform drivers of mine hazards. One of his current efforts is to provide all of the company's cartage contractors with a copy of the recent video, "Customer and Delivery Truck Drivers Hazard Training" (available from the National Mine Health and Safety Academy).

According to Mucha, "Once a truck driver gets past the gate, the only one of our people who has a chance to correct unsafe behaviors is the loader operator, and he's not always there. To keep truck drivers safe on our property, we have to find better ways to get them safety trained before they get here."

Are there any Spanish or Polish speaking safety trainers out there? Some truck drivers in the Chicago area need your help!

Lost-worktime injuries and illnesses: Characteristics and resulting time away from work, 1996

A total of 1.9 million injuries and illnesses requiring recuperation away from work beyond the day of the incident were reported in private industry workplaces during 1996 according to a survey by the Bureau of Labor Statistics, U.S. Department of Labor. The tabulation, at upper right, of the number of injuries and illnesses (in 1,000s) resulting in time away from work shows the decline in such incidents since 1992:

	1992	1993	1994	1995	1996
Private industry	2,331.1	2,252.6	2,236.6	2,040.9	1,880.5
Goods producing	903.3	854.5	864.8	780.0	697.9
Service producing	1,427.9	1,398.1	1,371.7	1,261.0	1,182.5

Table A presents the number of injuries and illnesses requiring recuperation away from work for 1992 through 1996 for the 10 occupations that accounted for nearly one-third of such incidents. Truck drivers experienced the largest number of injuries and illnesses with time away from work in all five years. Although the number of these injuries and illnesses declined for all occupations by about 20 percent from 1992 to 1996, injuries and illnesses for truck drivers increased by nearly 5 percent.

Four out of ten injuries and illnesses resulting in time away from work in 1996 were sprains or strains, most often involving the back. This also held true for each of the preceding four years. Although the number of incidents for all types of injuries and illnesses involving recuperation away from work declined by about 20 percent from 1992 to 1996, the decrease was less for amputations, carpal tunnel syndrome, and fractures.

Worker and case characteristics

Worker characteristics detail the demographics of the injured or ill worker by providing not only the occupation but also the gender and age of worker, occupational group, length of service

Table A. Number of occupational injuries and illnesses (in 1,000s) involving time away from work for selected occupations, 1992 - 1996

	1992	1993	1994	1995	1996
Truck drivers	145.9	154.7	163.8	151.3	152.8
Laborers, nonconstruction	152.1	146.3	147.3	115.5	108.5
Nursing aides, orderlies	111.1	103.9	101.8	100.6	93.6
Janitors and cleaners	59.6	62.1	60.6	52.6	46.9
Assemblers	47.7	46.8	53.0	55.5	44.0
Construction laborers	57.1	54.6	55.7	43.5	43.7
Carpenters	34.3	34.8	37.4	35.0	33.5
Stock handlers and baggers	44.4	39.5	37.2	34.7	31.9
Cashiers	41.7	35.4	35.6	30.2	30.9
Cooks	36.1	42.5	36.3	35.4	30.7

with employer at the time of the incident, and race or ethnic origin (tables 1 and 2). Following are highlights of the 1996 findings for these worker traits:

- Men accounted for two out of three of the 1.9 million cases, a proportion somewhat higher than their share (55 percent) of private wage and salary workers.
- Workers aged 25 to 44 accounted for 57 percent of the cases and 54 percent of the workers; workers aged 45 and over accounted for 24 percent of the cases and 29 percent of the workers.
- Operators, fabricators, and laborers led all other occupational groups, accounting for 42 percent of the case total. This group includes three of the five individual jobs with the largest number of lost worktime cases--truck drivers; laborers, nonconstruction; and assemblers (table 3).
- Most workers had at least a year of service with their employer when they sustained their injury or illness. Indeed, over a fourth had over five years of service, suggesting that many experienced workers incur lost worktime injuries.

Case characteristics help identify the disabling condition resulting from the lost worktime incident and how the incident happened. The survey contains four characteristics to describe each disabling injury or illness (tables 4 through 6). To illustrate, consider an injury to a nursing aide who sprains her back while lifting a patient. The nature, or physical effect, is a sprain or strain; the part of body affected, her back; the event, overexertion while lifting; and the source, the health care patient. Of the four characteristics, only the source changes when coding a similar incident for a truck driver who sprains his back trying to lift a box. Following are highlights of the 1996 findings for these case characteristics:

- Sprain and strain was, by far, the leading nature of injury and illness in every major industry division, ranging from slightly more than a third in Agriculture, forestry, and fishing to 53 percent in Transportation and public utilities.
- The trunk, including the back, was the body part most affected by disabling work incidents in every major industry division. Most other injuries and illnesses were to upper or lower extremities.
- No one source of injury or illness stood out, although each of the following three had nearly 15 percent of the case total: floors and other surfaces, worker motion or position, and containers.
- Overexertion while maneuvering objects led all other disabling events or exposures, cited in a fifth to a third of the cases in every major industry division.

Table B. Number of occupational injuries and illnesses (in 1,000s) involving time away from work for selected natures of injury and illness, 1992 - 1996

	1992	1993	1994	1995	1996
Sprains, strains	1,022.7	959.2	963.5	876.8	819.7
Bruises, contusions	222.7	211.2	212.0	192.1	174.9
Cuts, lacerations	173.6	169.9	164.6	153.2	133.2
Fractures	143.6	136.5	138.5	124.6	120.5
Carpal tunnel syndrome	33.0	41.0	38.3	31.5	29.9
Heat burns	41.0	37.7	37.3	36.1	29.0
Tendonitis	25.4	25.0	25.2	22.1	17.4
Chemical burns	15.7	15.7	16.5	13.9	11.6
Amputations	12.4	11.3	12.2	11.3	10.2

Injury and illness severity

Besides identifying high risk situations, the survey also helps researchers focus on those kinds of injuries and illnesses resulting in the lengthiest absences from work (tables 7 through 10). Median days away from work--the key survey measure of severity--designates a point at which half the cases involved more days and half involved fewer days. The median number of lost workdays for all cases was 5 days in 1996, with about a fourth of the cases resulting in 21 days or more away from work.

The survey also found the following patterns:

- Among major disabling conditions, median days away from work were highest for carpal tunnel syndrome (25 days), amputations (20 days), and fractures (17 days).
- Repetitive motion, such as grasping tools, scanning groceries, and typing, resulted in the longest absences from work among the leading events and exposures--a median of 17 days.
- Truck drivers had the highest median days away from work (10 days), followed by construction laborers, sales supervisors and proprietors, and waiters and waitresses (each with 8 days).

Technical note

The Bureau of Labor Statistics has reported annually on the number of days away-from-work injuries and illnesses in private industry and the rate of such incidents since the early 1970s. The 1996 national survey marks the fifth year that BLS has collected additional detailed information on such cases in the form of worker and case characteristics data, including workdays lost, summarized in this release.

The number and frequency (incidence rates) of these cases are based on logs and other records kept by private industry employers throughout the year. These records reflect not only the year's injury

Table 1. Number of nonfatal occupational injuries and illnesses involving days away from work (1) by selected worker characteristics and industry division, 1996 (Numbers in thousands)

Characteristic	Private industry (2)	Goods -producing			
		Agriculture, forestry, and fishing (2)	Mining (3)	Construction	Manu-facturing
Total	1880.5	38.3	15.1	182.3	462.2
Sex:					
Men	1,240.0	31.5	14.7	177.2	343.5
Women	620.5	6.6	0.3	4.4	115.7
Age: (5)					
14 to 15 years	1.5	0.1	—	—	—
16 to 19 years	73.8	2.1	0.2	5.1	11.9
20 to 24 years	231.3	6.3	1.6	24.5	53.6
25 to 34 years	559.9	12.7	3.5	63.1	133.8
35 to 44 years	511.7	9.0	5.2	51.6	133.4
45 to 54 years	304.4	4.7	3.0	21.9	83.9
55 to 64 years	126.5	2.0	1.2	9.3	33.7
65 years and over	17.7	0.3	—	.7	3.3
Occupation:					
Managerial and professional specialty	106.8	0.4	0.3	1.9	7.1
Technical, sales, and administrative support	274.0	1.2	0.2	2.7	26.4
Service	332.5	0.6	—	0.7	8 . 6
Farming, forestry, and fishing	45.1	28.8	0.2	0.2	2.7
Precision production, craft, and repair	309.0	1.5	6.9	107.0	79.7
Operators, fabricators, and laborers	797.6	5.6	7.2	68.5	332.1
Length of service with employer:					
Less than 3 months	235.4	8.8	1.8	35.9	49.4
3 to 11 months	342.9	7.2	2.7	40.7	69.1
1 to 5 years	587.8	13 .1	4.2	58.0	142.1
More than 5 years	506.3	6.7	5.3	34.1	158.8
Not reported	208.1	2.4	1.1	13.6	43.0
Race or ethnic origin:					
White, non-Hispanic	1,001.4	15.0	3.7	120.7	262.0
Black, non-Hispanic	165.7	1.5	0.1	8.9	39.0
Hispanic	169.3	16.5	1.0	19.7	45.1
Asian or Pacific Islander	27.0	0.1	—	1.2	7.2
American Indian or Alaskan Native	7.3	0.1	0.1	1.1	1.7
Not reported	509.8	5.1	10.2	30.7	107.4

(1) Days-away-from-work cases include those which result in days away from work with or without restricted work activity.
(2) Excludes farms with fewer than 11 employees.
(3) Data conforming to OSHA definitions for mining operators in coal, metal, and nonmetal mining and for employers in railroad transportation are provided by the U.S. Department of Transportation. Independent mining contractors are excluded from the coal, metal and nonmetal industries.
(4) In 1996, air courier operations previously classified in Industry Groups 421, 422, 423, 452, 473, and 478 were reclassified to Industry Group 451. As years. In addition, the 1996 estimates for transportation and public utilities may have more variability than those for prior years.
(5) Information is not shown separately in this release for injured workers under age 14; they accounted for fewer than 50 cases.
NOTE: Dashes indicate data that are not available. Because of rounding and nonclassifiable responses, data may not sum to the totals.

Source: Bureau of Labor Statistics, U.S. Department of Labor

and illness experience but also the employer's understanding of which cases are work related under current recordkeeping guidelines of the U.S. Department of Labor. The number of injuries and illnesses reported in a given year also can be influenced by changes in the level of economic activity, working conditions and work practices, worker experience and training, and the number of hours worked.

Table 3. Number of nonfatal occupational injuries and illnesses involving days away from work (1) by selected occupation

Characteristic	Private industry (2)	Goods-producing			
		Agriculture, forestry, and fishing (2)	Mining (3)	Construction	Manu-facturing
Total	1880.5	38.3	15.1	182.3	462.2
Truck drivers	152 .8	1.3	1.0	5.0	13.1
Laborers, nonconstruction	108.5	1.2	1.6	—	37.7
Nursing aides, orderlies	93.6	—	—	—	—
Janitors and cleaners	46.9	0.5	—	0.3	7.3
Assemblers	44.0	0.1	—	0.6	39.2
Construction laborers	43.7	—	—	42.9	0.2
Carpenters	33.5	—	—	—	2.0
Stock handlers and baggers	31.9	0.1	—	—	0.1
Cashiers	30.9	—			0.2
Cooks	30.7	—		_0	0.2
Miscellaneous food preparation	28.9	—	—	—	0.2
Registered nurses	28.9	—		—	—
Maids and housemen	27.2	—	—	—	0.1
Supervisors and proprietors, sales	26.9	—	—	0.2	0.4
Welders and cutters	26.1	0.1	0.3	3.0	18.2
Sales workers, miscellaneous commodities	25.2	—			
Automobile mechanics	21.0	—	—	0.1	0.4
Shipping and receiving clerks	19.8	0.1	—	0.1	6.5
Groundskeepers and gardeners, except farm	18.5	8.6	—	0.2	0.2
Driver-sales workers	17.5	—	—	0.1	4.1
Farm workers	16.0	14.0	0.2	—	0.3
Electricians	15.2	—	0.4	10.4	2.5
Health aides, except nursing	14.8	—	—	—	—
Plumbers, pipefitters, steamfitters	13.4	0.1	—	9.4	1.9
Industrial truck, tractor equipment operators	13.2	0.3	0.4	0.3	6.7
Guards and police, except public	13.1	—	—	—	0.5
Packaging machine operators	12.9	0.1	—	—	11.4
Waiters and waitresses	12.5	—	—	—	—
Stock and inventory clerks	12.4	—	—	0.1	2.5
Supervisors, production	12.2	0.1	0.1	—	8.7
Industrial machinery repairers	11.9	—	1.4	0.1	9.1
Licensed practical nurses	11.8	—	—	—	—
Bus, truck, stationary engine mechanics	11.4	—	—	0.3	0.7
Kitchen workers, food preparation	11.2	—	—	—	0.1

(l) Days-away-from-work cases include those which result in days away from work with or without restricted work activity.
(2) Excludes farms with fewer than 11 employees.
(3) Data conforming to OSHA definitions for mining operators in coal, metal, and nonmetal mining and for employers in railroad transportation are provided by the U.S. Department of Transportation. Independent mining contractors are excluded from the coal, metal and nonmetal industries.
(4) In 1996, air courier operations previously classified in Industry Groups 421, 422, 423, 452, 473, and 478 were reclassified to Industry Group 451. As years. In addition, the 1996 estimates for transportation and public utilities may have more variability than those for prior years.

Note: Dashes indicate data that are not available. Because of rounding and nonclassifiable responses, data may not sum to the totals.

Source: Bureau of Labor Statistics, U.S. Department of Labor

The survey continues to measure the number of new work-related illness cases which are recognized, diagnosed, and reported each year. In 1996, 94,700 of the 1.9 million cases with days away from work were classified as illnesses. Some conditions, e.g., long-term latent illnesses caused by exposure to carcinogens, often are difficult to relate to the workplace and are not adequately recognized

and reported. These long-term latent illnesses are believed to be understated in the survey. In contrast, the overwhelming majority of the reported new illnesses are those which are easier to directly relate to workplace activity (e.g., contact dermatitis or carpal tunnel syndrome).

The Survey of Occupational Injuries and Illnesses is a Federal/State program (50/50 funded) in which employer reports are collected from about 165,000 private industry establishments and processed by state agencies cooperating with the Bureau of Labor Statistics. Occupational injury and illness data for coal, metal, and nonmetal mining and for railroad activities were provided by the Department of Labor's Mine Safety and Health Administration and the Department of Transportation's Federal Railroad Administration. The survey excludes all fatalities at work and work-related nonfatal injuries and illnesses to the self employed; workers on farms with fewer than 11 employees; private household workers; and employees in federal, state, and local government agencies.

The survey estimates of the characteristics of cases with days away from work are based on a scientifically selected probability sample, rather than a census of the entire population. Two levels of sampling were used. First, establishments were selected to represent themselves and, in many instances, other establishments of like industry and workforce size that were not selected that survey year. Then, sampled establishments projected to have large numbers of days away from work cases were instructed before the survey began on how to sample those cases to minimize the burden of their response.

Because the data are based on a sample survey, the injury and illness estimates probably differ from the figures that would be obtained from all units covered by the survey. To determine the precision of each estimate, a standard error is calculated. The standard error defines a range (confidence interval) around the estimate. The approximate 95 percent confidence interval is the estimate plus or minus twice the standard error. The standard error also can be expressed as a percent of the estimate, or the relative standard error. For example, the 95 percent confidence interval for an incidence rate of 6.5 per 100 full-time workers with a relative standard error of 1.0 percent would be 6.5 plus or minus 2 percent (2 times 1.0 percent) or 6.37 to 6.63. One can be 95 percent confident that the "true" incidence rate falls within the confidence interval. The 1996 incidence rate for all occupational injuries and illnesses of 7.4 per 100 full-time workers in private industry has an estimated relative standard error of about 0.7 percent. A relative standard error was calculated for each estimate from the survey and will be published in a BLS bulletin that is scheduled to be available later in 1998.

The data are also subject to nonsampling error. The inability to obtain detailed information about all cases in the sample, mistakes in recording or coding the data, and definitional difficulties are general examples of nonsampling error in the survey. Although not measured, nonsampling errors will always occur when statistics are gathered. However, BLS has implemented quality assurance procedures to reduce nonsampling error in the survey, including a rigorous training program for State coders and a continuing effort to encourage survey participants to respond fully and accurately to all survey elements.

Establishments are classified in industry categories based on the 1987 Standard Industrial Classification (SIC) Manual, as defined by the Office of Management and Budget. In the trucking and warehousing and transportation by air industries, SIC coding changes that were introduced with the 1996 BLS Covered Employment and Wages program were incorporated into the estimates for the 1996 survey. Because of these changes, estimates for 1996 for the following industries are not comparable to estimates for prior years: trucking and warehousing (SIC 42); trucking and courier services, excluding air (SIC 421); public warehousing and storage (SIC 422); trucking terminal facilities (SIC 423); transportation by air (SIC 45); air transportation, scheduled (SIC 451); air transportation, nonscheduled (SIC 452); transportation services (SIC 47); freight transportation arrangement (SIC 473); and miscellaneous transportation services (SIC 478). In addition, the 1996 estimates for transportation and public utilities may have more variability than those for prior years.

The four case characteristics used to describe lost worktime injury and illness are based on definitions and rules of selection stipulated in the 1992 BLS Occupational Injury and Illness Classification System. The occupation of the injured or ill worker is based on the 1990 Occupational Classification System developed by the Bureau of the Census.

Bureau of Labor Statistics oshstaff @bls.gov
Last modified: Tuesday, April 21, 1998 URL:
http: www.news.release/osh2.nws.htm

Coal fatal accident summary

Fatal machinery

General information

The mine is located in Buchanan County, Virginia and is opened into the Pocahontas No. 3 Seam by eight shafts. Employment is provided for 345 persons. A total of 306 underground and 39 surface employees work on three production shifts per day, seven days per week. The surface area of the mine includes a large preparation plant which produces 10,000 tons of clean coal per day. Coal is cleaned, dried, stockpiled, and loaded into unit trains for transport or into trucks which deliver coal to the mine's impoundment area for storage when stockpiles are at or near capacity. The preparation plant area includes raw and clean coal silos, stockpile, and loadout facilities.

Description of accident

On Saturday, November 21, 1998, at 11:30 pm, the midnight shift crew comprised of 12 miners at the preparation plant began their shift under the supervision of the plant foreman. The plant foreman's shift began at 7:30 pm. The plant was idle and repairs begun on the previous shift were continuing. The draw-off belt conveyor under the clean coal stockpile was operating to load coal into trucks for transportation to the impoundment area for storage. None of the draw-off belt conveyor feeders were operating as the stockpile was gravity feeding onto the belt conveyor. At about 1:00 am, the plant foreman traveled by pickup truck to the impoundment area to check a pump and later returned to the plant.

Repairs were completed in the plant and start-up procedures began at 1:30 am. By 2:00 am the plant was operational. At 2:30 am, the victim, returned to the plant office from the skip shaft area where he had been working. At 3:00 am the plant foreman instructed the victim to assist with repairs on a floor brace in the plant. At 4:30 am the plant foreman instructed the victim to take a dozer to the clean coal stockpile and move coal away from the stacker. The stockpile was about 600 feet long and 300 feet wide at its base. The width of the pile is restricted by a public road on the east side and railroad tracks on the west. The pile was about 60 feet high at the time of the accident.

The victim reported by radio to the control room operator that he was entering the stockpile area. At 4:55 am the control room operator logged the contact. The victim called the dryer operator and told him that the No. 2 Feeder was feeding coal. At 5:25 am the control room operator called the victim on the radio and received no response. The control room operator contacted the dryer operator and asked him to go to the head house and see if he could locate the victim. The control room operator also notified the plant foreman of the situation. The plant foreman immediately obtained a vehicle and drove around the road beside the stockpile. Neither the plant foreman nor the dryer operator saw the victim or the dozer. The plant was then shut down completely including the draw-off belt conveyor. The plant electrician took another dozer onto the stockpile to look for the victim. He was unable to locate the victim and realized that the dozer must be in a void over a feeder. He located dozer tracks that ended at the edge of a void over the No. 1 Feeder. Within about 15 minutes, personnel from both the plant and mine had begun to gather. The assistant mine foreman traveled up the overhead stacker belt line catwalk and reported seeing metal in the No. 1 Feeder. The plant electrician reported seeing two to three feet of the dozer blade at the same location.

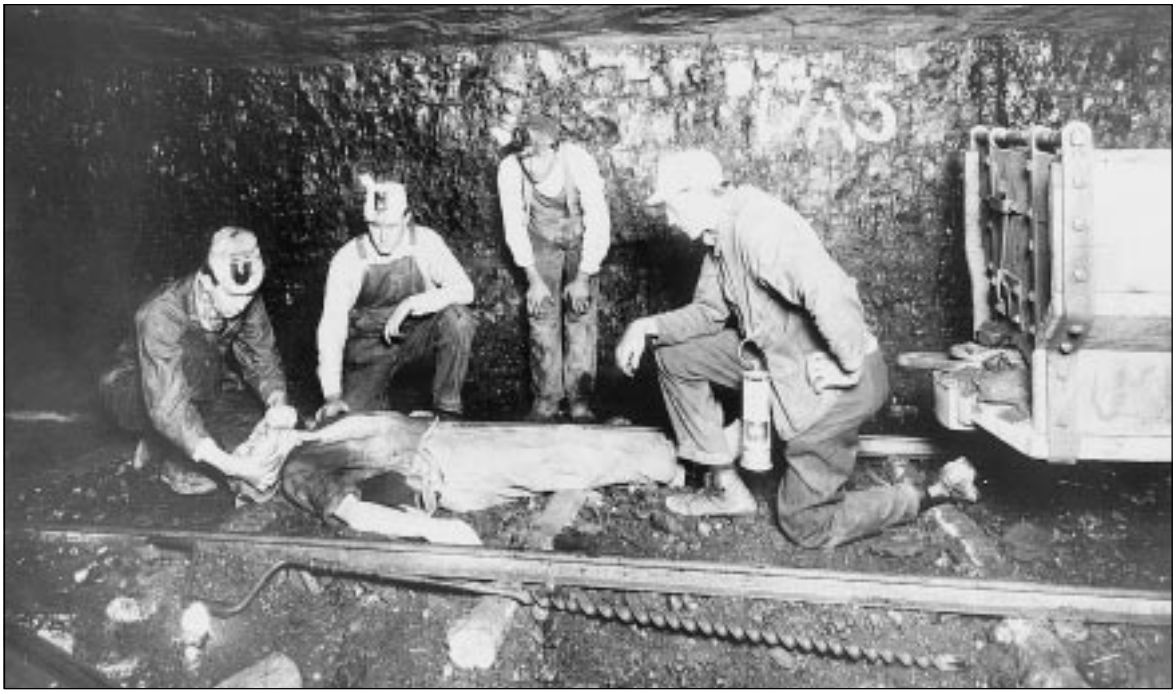
The plant foreman contacted the plant superintendent at home and asked him to begin emergency procedure contacts. He did this by cellular phone as he traveled to the mine site. The plant foreman brought in every available piece of earth moving equipment and immediately began moving coal away from the No. 1 Feeder area. Members of the company's mine rescue team arrived and assisted in the recovery. Personnel from MSHA and the state of Virginia assisted in the recovery operation.

The victim was extricated from the dozer at 1:12 pm. He was not wearing a seatbelt when recovered. The male section of the seatbelt was found behind and to the right of the operator's seat. The seatbelt was functional and adjusted to a length adequate to reach around an MSHA Technical Support Engineer when examined after the dozer was recovered. The victim was transported by ambulance to the hospital where he was pronounced dead by the county medical examiner.

Conclusion

The accident occurred when the dozer operated by the victim traveled into a hazardous area near the No. 1 Feeder containing a bridged over void in the stockpile. The bridged material collapsed causing the dozer to tumble into the underlying void where it was subsequently engulfed with loose coal. The layering effect of the fine coal and the fact that deenergized feeders gravity fed on to the draw-off belt conveyor without being positively identified led to a steep-sided void completely bridged over the No. 1 Feeder which was unobserved by the victim or any other personnel on the midnight or preceding shifts.

Reprinted and edited from an MSHA Accident Investigation Report by Fred Bigio



Pennsylvania miners practice first aid—photo taken between 1912 and 1915.

Jermyn, Pa.—birthplace of first aid

By Bob Tomaine, The ***Scranton Sunday Times***

Jermyn, Pa.—The borough's connection to the anthracite industry becomes further removed each year, but a program developed for miners by a doctor a century ago ensures the community's place in history.

"We want to celebrate the hundredth anniversary of the founding of first aid in America," Mayor James Buckingham said. "It'll bring honor to the town and recognize these people."

The recognition will go to Dr. Matthew J. Shields and the Hudson Coal Co. employees who gathered on Oct. 25, 1899, in Carpenter's Hall to form the First Aid Association of Jermyn, Pa.

In the summer of 1899, a decade of dealing with mine accidents had become enough for the doctor. According to The Red Cross Courier, he was struck by the cruelty of summoning an ambulance by several long blasts on the mine siren and by dangerous handling of injured miners.

"One day" the Courier reports, "he decided that the talk of first aid at the mines must give way to action for the sake of the miners and their families."

Some miners at Hudson's Jermyn Colliery had received first aid training before immigrating from England, and Dr. Shields saw them as the nucleus of the 25-man class.

The Oct. 25 meeting was the first in a weekly series at which miners studied anatomy, learned to use bandages and splints, and practiced on a willing volunteer.

They also paid monthly dues of 25 cents each and contributed 5 cents each toward supplies on paydays. Locked first aid boxes were placed in mines, and members with keys were called to accidents.

By the summer of 1900, Dr. Shields had written a first aid manual tailored to miners' needs and about five years later, other coal companies began to look at his work. By 1906, an annual first aid contest was underway and three years later the Red Cross Central Committee recognized Dr. Shields "for the special work in organizing instruction in precaution against accidents and in first aid among miners."

The U.S. Bureau of Mines took over first aid instruction from miners in 1910 and Dr. Shields, who had moved to Scranton in 1904, remained with the Red Cross and turned his efforts to training workers in other industries.

He died Jan. 23, 1939, in Scranton.

Although the committee will begin its work shortly, the mayor said other efforts to recognize the anniversary have been underway since 1995.

He said the U.S. Postal Service has been asked to issue a commemorative stamp.

As the centennial year, this year's anniversary is a major one, but it will not be the first time Jermyn has recognized Dr. Shields' place in history and therefore its own.

"Something that's as important as this was in its time and still is," the mayor said, "I think they should put on a pedestal above everything else."

Reprinted and edited from the January 15, 1999 issue of the ***Scranton*** *(Pa.)* ***Times.***

Metal and Nonmetal fatal accident summary

Fatal powered haulage accident (salt)

General information

A 51 year-old equipment operator was fatally injured at 10:15 am on November 5, 1998, when he was caught between a metal support for a belt conveyor and the canopy of the tractor he was operating. The victim had 25 years and 5 months total mining experience all at this mine, the last year and 7 months as an equipment operator.

MSHA was notified at 10:50 am on the day of the accident by a telephone call from the operations coordinator for the mining company. An investigation was started the same day.

The operation was an underground salt mine located in Louisiana. The mine was normally operated one, 10-hour shift a day, four days a week. Maintenance was performed two, 8 hour shifts a day, five days a week. A total of 153 persons was employed; of this number, 88 persons worked underground.

The mine was developed by a room and pillar method of mining and was accessed from the surface by three vertical shafts. The salt was drilled and blasted, then placed in haul trucks by front end loaders for transportation to the crusher. The salt was crushed and conveyed to the 900-foot level where it was screened, sized and hoisted to the surface. The finished products were sold for ice control and a variety of industrial applications.

Description of accident

On the day of the accident, the victim reported for work at 7:00 am, his regular starting time. He went underground to the 900 foot level where he met his supervisor and a coworker. They traveled to the screen plant to start the equipment and noticed that cleanup was needed at the tail pulleys. The victim informed the supervisor that both skid-steer loaders were down and suggested they use a material handler tractor to clean around the tail pulleys.

The supervisor and the victim went to the 1300-foot level where they found two of the tractors. One would not start and the other was being used by the production miner to load pallets. The victim assisted the production miner and then drove the tractor to the 900-foot level where he and his coworker began to clean the area.

The supervisor returned to the 900-foot level a little after 9:00 am and informed the victim that when they finished cleaning up he should take the tractor to the maintenance shop for exhaust repairs. A short time later his coworker told the victim the cleanup was good enough and asked him to drive the tractor to the shop.

The accident occurred at the southwest corner of Q-12 intersection on the 900-foot level. The intersection was approximately 100 feet long, 100 feet wide and 100 feet high. The floor was dry and level except for a two degree slope at the accident site. Illumination was provided by high-pressure sodium luminaries at the crusher and conveyor transfer area.

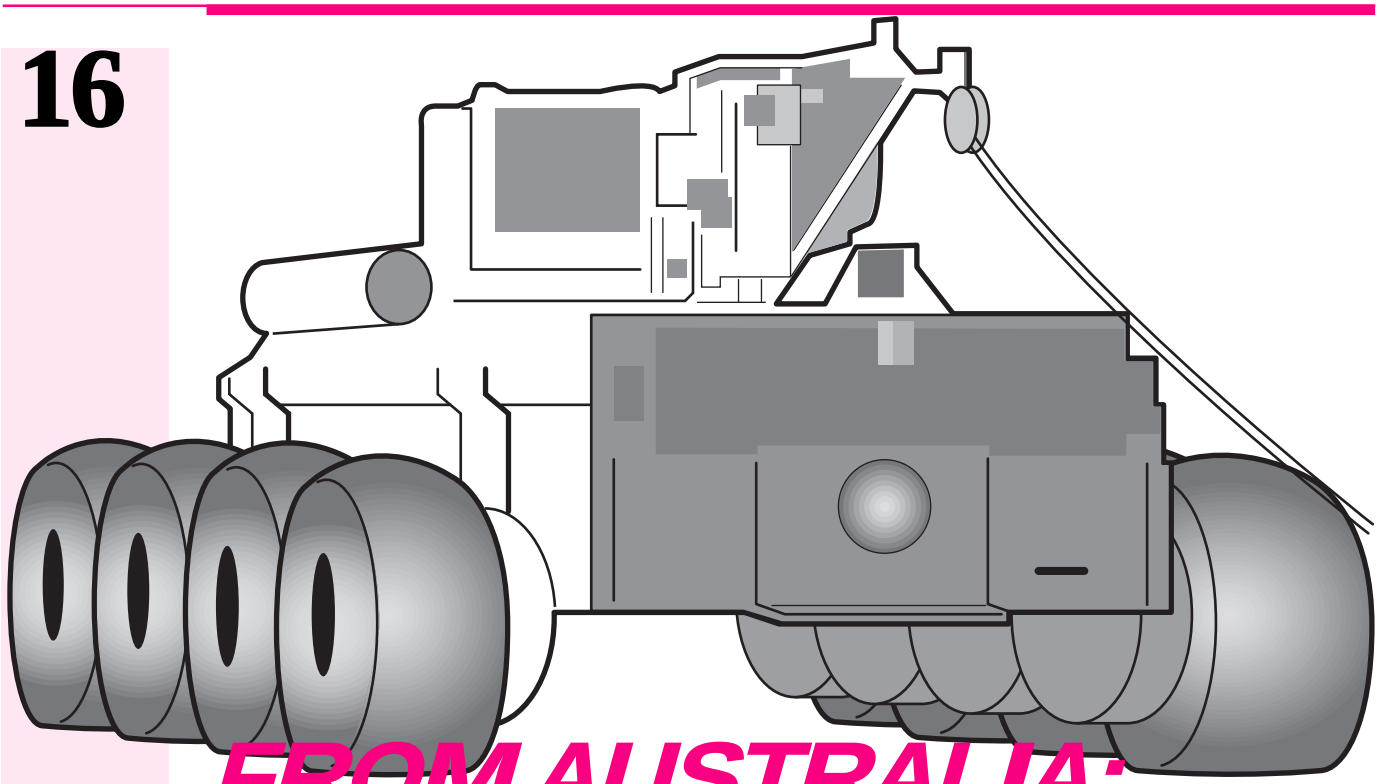
The equipment involved in the accident was a Gradall model 544B (material handler) wheel tractor with rear wheel steering and a rigid front axle. It was equipped with an extendable boom and a bucket. The weight of the tractor was 27,800 pounds. A diesel engine provided power to the front wheels through a three-speed transmission. The rear wheels were driven by hydraulic motors located at each wheel. Internal wet disc service brakes were provided on the front axle only. A spring applied disc parking brake was provided on the output shaft of the transmission. A falling object protective structure (FOPS) was mounted above the operator's cab. Lights were provided on the front of the tractor.

The supervisor, who was at the northeast corner of Q-12 intersection, saw the victim as he drove by on the tractor and assumed he was going to turn around and go to the shop. When the supervisor looked again, he noticed the tractor had stopped under the conveyor belt. The engine was running and the left rear wheel was against the metal conveyor support. The victim was slumped over in the seat with a head injury. He was apparently attempting to turn the tractor when he leaned out of the cab for a better view of the clearance between his rear wheel and the conveyor support column. While doing this, his head was caught between the conveyor support member and the FOPS. The supervisor immediately called the department supervisor and the coworker for help. Medical assistance was summoned and the victim was placed in a stretcher and transported to the surface where he was pronounced dead a short time later.

Conclusions

Visibility to the rear of the tractor was good without leaning out of the protective structure of the cab. Apparently the victim simply leaned out while the tractor was moving and his head was caught between the FOPS and the conveyor support.

Reprinted and edited from an MSHA Accident Investigation Report by Fred Bigio



FROM AUSTRALIA:

Mining robotics—"numbat"

Purpose

Numbat is a remotely controlled underground mine response vehicle for use in emergency situations. It guides rescue operations by surveying underground conditions, and relaying information immediately to rescue control on the surface. It provides rescue teams with up-to-date information to allow them to plan operations for maximum effectiveness with minimum risk, using information on the physical conditions in mine openings through atmospheric analysis, visible light, or thermal infrared TV images.

Operation

The vehicle is controlled from a surface station where information on mine conditions are constantly relayed. The driver uses TV in clear air or thermal infrared images in smoke to navigate Numbat remotely through the mine. In an emergency Numbat is mobilized, the surface station established, and the vehicle driven some distance into the mine to report on conditions. If entry of the rescue teams is possible, they then commence the introduction of fresh air bases while Numbat is deployed ahead of the team to determine conditions in the next section of the mine.

Numbat facts

Vehicle

The Numbat is an eight wheeled all-terrain machine using skid steering. Driving power is obtained from two 750 watt electric motors, one on each side of the vehicle. It is powered by a 48-volt nickel-cadmium battery of 140-ampere-hour capacity, giving an operating duration of about 8 hours. Pairs of wheels at the front and rear are mounted on rocker arms which move independently over rough surfaces. The vehicle can propel itself across water obstacles. The size of the vehicle (2.5 x 1.65 meters) is largely dictated by the size of the obstacles it is intended to negotiate.

Communications

Primary communication is via a cable containing a single optical fibre. A drum containing four kilometers of cable is carried on the vehicle and cable is paid out and retrieved as required. Data is transmitted in both directions over the fibre using different optical wavelengths. Telemetry data, two video channels, and an audio channel are multiplexed onto a 125 Megabits per second digital channel for transmission to the surface. The downlink to the vehicle operates at 2 megabytes per second and carries an audio channel and command data.

Environmental monitoring

Onboard analysis is carried out for important mine gases (carbon monoxide/dioxide, methane, oxygen, and hydrogen), ventilation speed, atmospheric pressure, and temperature. Gas analysis is carried out continuously, and results are updated on the surface computer. Gas composition inside the vehicle is measured regularly using the same system to check the status of the vehicle pressurization.

Environmental navigation
Normal navigation uses four video cameras. Two are fixed, facing front and rear, and two further cameras are mounted in a turret capable of both pan and tilt motion on top of the vehicle. One of the turret-mounted cameras has zoom capability and is used for close inspection of details.

Surface control station
The surface control station includes driving controls for the vehicle, video displays, a VCR and a visual display of all vehicle and environmental monitoring data. An audio link allows two-way contact between anyone in the vicinity of the vehicle and surface control.

The Numbat is named after the Australian marsupial (myrmecobius fasciatus). The numbat digs long burrows and is often found searching in subsurface soil and tunnels.

Hainsworth, D.W. O. Numbat [WWW document], http://www.cat.csiro.au/automation/projects/numbat.html [Accessed 11 December 1998]

Academy to host M/NM Rescue Team Trainers Seminar

The National Mine Health and Safety Academy is hosting a Metal/Nonmetal Mine Rescue Team Trainers Informational Seminar. The seminar begins at 8:00 am on March 30 and ends at 3:00 pm on March 31.

The seminar is designed to assist Metal/Nonmetal Team Trainers and others to prepare practice sessions for team members. The seminar plans to offer a variety of lectures, demonstrations, case studies, and related mine rescue information from recognized presenters. There is no charge for the seminar.

To register for the seminar and to inquire about lodging and meals at the Academy, please call 304-256-3252. For further information on the seminar please contact Dave Friley at 304-256-3343.

Submitted by John Hymes of the National Mine Academy at Beckley, W. Va.

Sixth Annual Western Mine Safety and Health Workshop…

to be held at the Embassy Suites Hotel, 4444 N. Havana Street, Denver, Colo. on May 18-19, 1999.

Sponsored by: Colorado Div. of Minerals and Geology and the Colorado Safety Association, in cooperation with: Colorado Rock Products Association and the Colorado Mining Association.

Topics will include:
- New regulations and policies update
- Creating innovative training materials
- Independent contractor safety
- Silica dust and noise hazards
- Equipment maintenance
- Surface haulage
- Parts 46/48 training update/discussion

And much more…

Registration: $ 250 includes lunches, breaks, and program materials (NOTE: Tickets to Rockies vs. Cincinnati baseball game for first 40 registrants)

For information contact: Shirley Just, Colorado Mine Safety Program, 303-866-3651

May 18-19, '99

West Virginia mining…

The steady drop in mining fatalities should be celebrated and continued.

The biggest flap in West Virginia in the past year was over large-scale surface mining. The horrors of underground mining have quietly faded into the background.

It's a change that should be noticed and savored and above all, continued.

The state is mining more coal than ever and losing fewer miners doing it.

That's a welcome achievement.

West Virginia's claim to fame throughout this century has been catastrophic mining accidents that claimed hundreds of lives. As late as 1970, the state still had 63 mining fatalities in a single year.

But in 1997, for the first time, mining fatalities were numbered in the single digits. Six men died in the mines that year.

The state had six mining fatalities again last year—all at underground mines, and most from roof falls.

Most of those fatalities occurred in January and February.

State mine inspectors are out in the field now, encouraging people in the industry to keep working safely.

"It's usually not failures of the mining plan," said Ron Harris of the state Office of Miners' Health, Safety and Training. "It's usually human error, where a person didn't think or a group of people didn't think."

Clearly, a lot more people are thinking now.

Six fatalities—six heartbroken families—is too many. Second in the nation in mining fatalities (Kentucky is first) is not good enough either.

But it's a tremendous improvement in a centuries-old source of heartbreak, and that should be celebrated.

Charleston Daily Mail Editorial—January 7, 1999—[Accessed 16 February 1999]

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Idaho

Money sought to seal old mines

Two-thirds of abandoned sites pose risk to public, environment

*Betsy Z. Russell—**The Spokesman-Review***

Boise, Idaho—Of the 8,000 abandoned mines across Idaho, at least two-thirds pose a danger to the public.

That's the bad news.

"The good news is… there's only a handful, probably 30 to 50, that have major environmental problems," said Earl Bennett, dean of the College of Mines at the University of Idaho.

Bennett testified for state lawmakers who have been asked to approve closing mines that are dangerous to the environment or backcountry explorers.

Dangers in abandoned mines include unstable ground, cave-ins from above or below, hidden shafts, rotting timbers and deadly carbon monoxide.

North Idaho knows the danger of old mines. In 1995, two young men died after being overcome by carbon monoxide while exploring a mine along the shores of Lake Pend Oreille, near Bayview.

The mine hadn't been worked since the 1920s. Its cool, open tunnel, just above a sandy beach along the lake, was attractive to party goers and explorers. Since the accident, the U.S. Forest Service has sealed off the mine opening with metal bars.

There may also be abandoned mines on state lands. That's why the Idaho Mining Association is proposing legislation this year to funnel about $200,000 a year into a state program to seal off the most dangerous spots.

Jack Lyman, head of the association, said, "As the state's population grows and outdoor recreation increases, more and more of our citizens will come upon these sites."

He admits it may be a challenge to get the Legislature to give up any money in a year when the state budget is tight. But he's written his bill to tie the funding directly to the license tax that mining companies pay.

That tax, which totals 2 percent of net profits of all mines, has been in effect since 1935. The money goes into the state's general fund.

Lyman's bill, HB 84, would divert one-third of the license tax collected each year into an abandoned mine reclamation account that the state set up in 1994.

The account has never had any money in it. It was set up in anticipation of federal mining law reforms to take a portion of new royalties that were to be charged. But that federal law was vetoed.

The program targets only abandoned mines for which no owner can be found. Current mine operators are required to take care of the problem themselves.

Sharon Murray, mineral leasing specialist for the state Department of Lands, said state law makes the department responsible for dealing with abandoned mines, "if money ever becomes available."

The Legislature last year gave the department $40,000 to begin taking inventory of abandoned mines on state lands. The department also hopes to use data developed by the Geological Survey, which includes a field survey of problem sites across North Idaho.

Initial data from that survey shows more than 50 mine openings in one Silver Valley drainage alone, at Prichard and Eagle creeks. Some of those mines are still active, but most aren't.

"Some of these are very difficult to get to—they're places nobody would want to go for anything," said Mitchell, the research scientist. "And then there's some of them that are quite dangerous.

Bennett, who directs the Geological Survey, said, "For some reason, people just can't stand the thought of not going inside and seeing what's there."

Russell, B. (1999). ***Spokane Spokesman-Review****. Money sought to seal old mines [Online]. URL http://www.spokane.net:80/news-storybody.asp?Date=012899&ID=s522184&cat= [Accessed 10 February 1999]*

ABANDONED MINES

ATV rider killed falling into shaft

A man was killed after falling down a 50-foot mine shaft while four-wheeling Jan. 23 in Tooele County, Utah.

The 26 year-old victim and his brother-in-law were riding ATVs near the border of Tooele and Utah counties when they headed up a hill that appeared to have a flat surface. But on top of the hill is a mine shaft with an opening between 10 and 15 feet wide.

The victim who was apparently riding in front, drove directly into the hole and plunged about 50 feet with his vehicle.

The victim was carrying the cellular phone the pair had brought with them, forcing the brother-in-law to flag down other people in the area to call for help. Rescuers from Tooele and Utah counties rappelled down the hole and found the victim dead. A doctor at the scene said he believes he may have died shortly after impact due to massive head injuries. It was noted that he had not been wearing a helmet.

Reprinted from the February 5, 1999 issue (Vol. 6, No. 3) of Legal Publication Services' ***Mine Safety and Health News****.*

Hearing finds that two-thirds of abandoned Idaho mines pose danger

The Idaho Mining Assn. is proposing legislation this year that would target about $200,000 to seal off the most dangerous abandoned mines in the state.

The money would come from a license tax that mining companies pay. That tax, which totals 2% of net profits of all mines, has been in effect since 1935. The money goes into the state's general fund.

However, a bill before the legislature would divert one-third of the license tax collected each year into an abandoned mine reclamation account. The program would target only abandoned mines for which no owner can be found.

There has been a mine license tax, but those funds have gone into the general state treasury. They also vary from year to year with a high of $960,500 in 1998 to a low of $110,000 in 1993. However, no matter what the revenue, it would be more money than what is currently available, which is zero.

Reprinted from the February 5, 1999 issue (Vol. 6, No. 3) of Legal Publication Services' ***Mine Safety and Health News****.*

Behavior of a limestone roof supported by spot bolting

Dennis R. Dolinar, Mining Engineer and Thomas P. Mucho, Mining Engineer
National Institute For Occupational Safety and Health

In this case study, a highly stressed limestone roof that would eventually fail was instrumented. This instrumentation was used to continuously monitor bolt loads, roof movement, temperature and humidity over a 9 month period. The only roof support in the test room was provided by the instrumented bolts thus making it a spot bolting system. Prior to the start of the roof failure, a direct correlation between a change in air temperature from mining and in bolt loads was established. Finally, the increase in air temperature caused by heat generated by mining equipment was sufficient to induce an added roof stress that triggered the failure process. Before mining was halted by roof activity, the room temperature reached a maximum of 110 degrees F. A fracture developed in the roof at a depth of about 1 ft. with a vertical displacement of 0.075 in. Once initiated, the failure continued to progress over a period of 3.5 months with no mining activity in the room during this time. Roof movements were small while maximum bolt loads although changing were less than 7,000 lb. However there was a continuous pattern of bolts loading and unloading across the room. Just before mining was resumed there was a sudden increase in the load on one bolt that reached 26,000 lbs. followed shortly by a sudden load decrease. This change in bolt load was associated with the development of another roof fracture at a depth of 2 ft. that indicated the roof had failed. A roof fall occurred adjacent to the instrumented area in the room shortly after mining was resumed while the roof with the bolts did not fall. In this roof failure, only the roof skin was affected while continuous monitoring of the instrumentation was necessary to capture the sudden roof movements and changes in bolt loads that occurred.

Reprinted from the NIOSH Website, accessed 9 February 1999.

20

Worker dies in Keystone Silo accident

Ten-foot-deep cement avalanche buries man at East Allen Twp. Plant.

Christian D. Berg and Daryl Nerl, The Morning Call Staff writer Bill Tattersall contributed to this report.

The owner of a Saylorsburg, Pa. contracting firm hired to clean silos at Keystone Cement Co. was killed Wednesday morning by a 10-foot-deep cement avalanche that prevented emergency workers from recovering his body for eight hours.

Officials at the scene in East Allen Township said the 51 year-old victim of Saylorsburg died after putting himself in a situation his employees felt was too dangerous to chance.

Three employees of the victim's contracting co. who inspected the 70-foot-high cement silo told the victim they were not comfortable entering the silo. The victim told his coworkers to stay out of the structure, officials said.

But the plant manager said the victim decided to enter the silo himself—without the safety harness or rope normally used as safety precautions. The employees who were with him were all wearing their harnesses, the plant manager said.

While the victim inspected the situation, his employees told investigators, the semisolid ledge of cement he was standing on gave way, and he slid down a 15-foot slope to the bottom of the silo.

As he fell, workers said, a pile of cement that sloped up the silo wall began to fall in on top of him.

''One of the employees was looking in and saw the pile under him break loose," the plant manager said. ''He slid down, managed to grab for the hand of the man outside, and their hands never met."

Seconds later, the victim was buried under 10 feet of cement at the bottom of the silo.

The county coroner pronounced the victim dead at 6:30 pm. His body was not extricated until 8:01 pm, according to a state police news release.

The plant manager said the victim's coworkers and Keystone employees immediately started digging in an attempt to rescue him.

Emergency dispatchers received a call for help at 11:42 am. Within minutes, 50 rescuers from the East Allen, Allen, Bethlehem Township, and Han-Le-Co fire companies were at the scene, just off Route 329 outside Bath.

But because the victim's body was buried at the bottom of the silo and there was still a large amount of hardened cement hanging on the silo walls, the East Allen Fire Chief could not send men into the silo.

After consulting with paramedics and considering the danger of sending men into the silo, the East Allen Fire Chief said he decided to declare the operation a body recovery instead of a rescue.

"These are the worst decisions we have to make," the East Allen Fire Chief said, ''[but] we're not going to put our rescuers in harm's way."

The trap door the victim used to access the silo is a l-by-2 opening about 20 feet up the side of the silo.

Before emergency workers could safely reach the victim, the East Allen Fire Chief said, all the cement stuck to the silo walls above the trap door had to be scraped off with high-pressure air guns to prevent more cement from falling on rescuers. They also used vacuum trucks at the plant to vacuum out the cement as they freed it.

It took rescue crews more than six hours to vacuum out all the cement so they could get a rope around the body to pull it out.

A l-foot hole about 2 feet under the access door was cut so rescue crews could remove the body using ropes strung across the silo so they would not get trapped if more cement fell.

The East Allen Fire Chief said the coroner was called to the scene when they recovered the body, and said the coroner took it to Easton Hospital.

Northampton Fire Department's confined-space rescue team was called in to assist with the recovery efforts, while state police and a representative of the U.S. Mine Safety and Health Administration investigated.

"This really taxed a large part of Northampton County's emergency crews today," said the East Allen Fire Chief. ''And it is the kind of situation [where] there is no good way to train for it. We were faced with confined space, the need for trenching, and the use of ropes and harnesses for the height."

While emergency crews worked their way to the victim's body, shocked family members arrived.

The victim's two daughters arrived at Keystone's plant around noon and burst into sobs when told about the accident.

His wife arrived around 12:50 pm and hurried her daughters into Keystone's office, where the family was consoled by company officials.

Wednesday was the first time a silo cleaning crew was ever involved in an accident at the plant, the plant manager said.

The plant manager said the contracting firm has been cleaning Keystone's silos for the past five or six years without incident. The victim had been working his way through the company's 70 silos for the better part of the last two months, the plant manager said.

The silos are of varying shapes and sizes. This particular silo is 70 feet high, about 20 feet in diameter and, when full, holds about 2,500 tons of cement.

Keystone has the silos cleaned every winter after the end of the construction season when the silos have been emptied, said Keystone's vice president for environmental affairs. After prolonged storage and exposure to moisture, some of the powder clings and cakes on the silo walls, limiting the silo's storage capacity.

On Wednesday, the plant manager said the workers were supposed to be cleaning out the cement at the bottom of the silos near the conveyor belts. But in the silo where the accident occurred, Keystone's vice president for environmental affairs said a considerable amount of cement buildup remained.

"Obviously, when something like this happens, you look back and see whether anything could have been done," Pechota said. "This an unfortunate accident that we are just sick about."

Reprinted from the Thursday, January 28, 1999 edition of the ***Allentown Morning Call.***

NSP wants coal ash as a fertilizer

Northern States Power has asked the Minnesota Pollution Control Agency for permission to market coal ash as an agricultural fertilizer. Agency spokesman Neil Wilson says the material is very similar to other commercial fertilizers and also has fewer heavy metals than most sewage sludge used to fertilize crops. The ash would be used as a liming agent for crops grown in central Minnesota's acidic soil. Wilson adds the permit would require strict ground water monitoring.

(1999, 11 February), NSP Wants Coal Ash as Fertilizer [Online]. URL http://dailynews.yahoo.com/headlines/local/state/minnesota/story.html?s=v/rs/19990211/mn/index_2.html#3 [Accessed 17 February 1999]

U.S. Energy, Interior Depts. seek cleaner coal mines

Washington, Feb 10 (Reuters) - The U.S. Energy and Interior Departments announced on Wednesday they will join forces to clean up areas surrounding current and abandoned coal mines.

Under the five-year partnership, the agencies will share technical services, expertise and information on improving the environment around coal mines.

The agencies will focus on cleaning up and possibly using vast amounts of waste coal in ponds and refuse piles at mine and coal preparation plants.

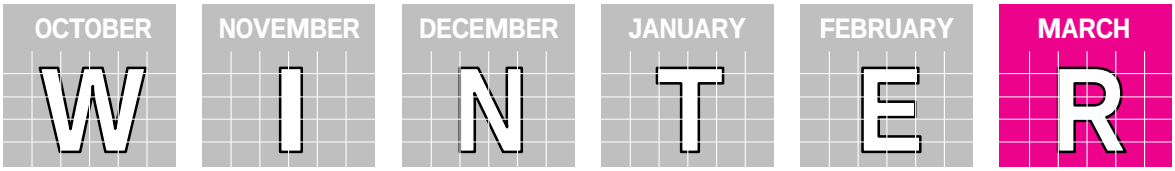
As much as 3 billion tons of fine coal particles, equal to 8 billion to 12 billion barrels of oil, have been discarded in 6,000 waste piles and ponds in coal-producing states, the Energy Department said.

The agencies also will work to clean up rivers affected by runoff from mines closed before passage of the Surface Mining Act in 1977.

Other areas of future cooperation could include coming up with better ways to control mine fires, dispose of combustible coal by-products and preserve the soil and underlying rocks around coal mines.

(Tom Doggett, Washington Energy Desk, 202-898-8320)

Doggett, T. (1999, 10 February), U.S. Energy, Interior Depts. seek cleaner coal mines. URL http://biz.yahoo.com/rf/990210/blj.html [Accessed 17 February 1999]



ALERT reminder: ● ***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.***

Illinois producing high-tech training films with help from MSHA grant money

They have the same special effects that made "Jurassic Park" a hit. But the only thing resembling a dinosaur in these flicks is a front-end loader.

Art Rice and Gary Janello of the Illinois Dept. of Natural Resources are making use of high-tech computer animation to produce mine safety films that just couldn't be produced in real life.

And while these films aren't going to win an Oscar or rake in millions at the box office, they are drawing attention from the nation's mine operators.

"We live in a visual world. This tends to be the best way for people to learn and remember it," Janello said.

Illinois is the only state to produce its own mine-safety films, Rice said.

They're distributed free here, but mines from Wyoming to Florida are paying to use them. And officials from West Virginia recently traveled to Benton to learn how to make their own.

The films come with some pretty dry-sounding titles: "Underground Haulage Safety," "Structural Collapse in Illinois Coal Mines," "Degraded Image Hazard Recognition."

But they're spiced up by state-of-the-art animation produced with the aid of a video studio featuring 3-D animation tools and digital cameras and editing equipment.

In addition to live video, the 10- to 15-minute films feature photo-realistic animation of scenes that would be too costly or dangerous to film in real life, Rice and Janello said.

In one animated sequence, a fuel truck is shown backing into a pickup. In another, an animated miner is shown walking in the path of a front-end loader.

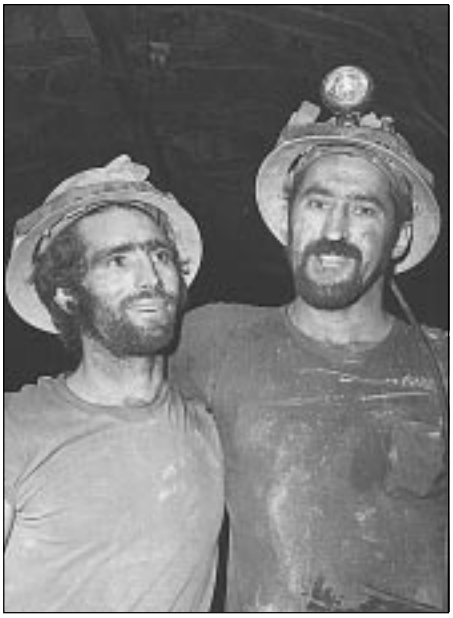
The films focus either on common safety problems or illustrate recent accidents. For instance, the office recently produced a video demonstrating how a roof bolter can fail at high speeds, killing the operator. Such an accident happened July 18 in Marissa, with fatal results.

Rice and Janello collaborate on the productions, with Rice researching and scripting the films and Janello filming, animating and editing them.

"Everyone always 'oohs' and 'ahs' over Gary's animation and special effects, but I like to think of the script as that critical skeleton to build from," Rice said.

About 80% of the funding for films comes from an MSHA grant and the state provides the remainder.

Reprinted from the September 4, 1998 issue of ***Mine Safety and Health News*** *by Legal Publication Services*



Far left: Mine rescue team prepares to enter Jewell Shaft at the Sunshine Mine.

Near left: Ron Flory, left, and Tom Wilkinson were the only survivors of the disaster which claimed 92 lives.

Music by numbers honors miners killed in fire

Local composer uses date of disaster in piece performed by youth symphony

Laura Shireman—The Spokesman-Review

Coeur d'Alene—Ever heard a date turned into music?

That's what composer and North Idaho College instructor Gerard Mathes has done with a piece that honored miners who died in a 1972 fire at the Sunshine Mine in Kellogg, Idaho.

The North Idaho Youth Symphony performed the work at a free concert.

Mathes said he tried to take the date of the fire, May 2, 1972—which is also the name of the composition—and use the numbers in it in musical patterns. For example, he uses the numerical form of the date—the numbers 5, 2, 1, 9, 7 and then 2 again—as a beat pattern in one part of the song.

"I like to explore the emotional significance of numbers," he said." The numbers that are connected to a very emotional event can have some very important musical significance."

Along with the date, Mathes weaves into the music the cadence of the Catholic rosary and the rhythms of the names of the dead miners' jobs. He uses unique sounds, too, he said.

"For example, I have a harp player and sometimes she'll get different sounds when she puts thimbles on her fingers," he said.

Percussionists do things like strike the floor with planks and cut aluminum cans with knives. An adult solo flutist, Greg Bishop of Hayden, uses four flutes—a bamboo flute, an Irish whistle, a pan pipe and a modern flute—for different moods in the piece.

"I like to explore with sounds that are significant to the scene," he said.

Conductor Todd Snyder, who's also an instructor at NIC, has worked with Mathes numerous times and describes the music as "kaleidoscopic."

"The colors of the sound keep changing as you listen to it," he said. "It's very complex because the various instruments interact and work together in so many ways."

Along with Mathes' piece, the about 50 high school-age musicians in the North Idaho Youth Symphony performed Ludwig van Beethoven's "Egmont Overture," Igor Stravinski's "Finale" from the Firebird Ballet, Michael Abel's "Dance for Martin's Dream," a salute to Martin Luther King Jr., and music from "Titanic" by James Horner.

Shireman, L. (1998, 2 May). Spokane Spokesman-Review. ***Music by numbers honors miners killed in fire.*** *[Online]. URL http://www.spokane.net:80/news-story-body.asp?Date=012599&ID=s520432&cat=section.Mining [Accessed 10 February 1999]*

Joseph A. Holmes Safety Association 1999 Conference

The Joseph A. Holmes Safety Association (JAHSA), the Holmes Safety Association (HSA) will hold their annual business meetings at the Adams Mark, St. Louis, Missouri on June 2-4,1999. Hosted by the Department of Labor and Industrial Relations, Division of Labor Standards, the agenda includes important safety and health topics which will be of great interest to participants. Mark your calendars and plan to join us in the "Show Me State."

The Conference will be held at the Adams Mark Hotel. (Make your reservations directly with the Adams Mark by calling 1-800-444-ADAM (2326). It is recommended that all reservations be guaranteed either by advanced deposit of one night's lodging or by credit card. We have reserved a block of 250 rooms, which will be held until May 15,1999. Be sure to indicate you are attending the Holmes Safety Association meeting.

The $125 registration fee (Spouse/Guest $75) includes the Paddleboat Dinner/Excursion on Thursday, June 3,1999 and the Banquet on Friday, June 4, 1999.

If you have any questions or would like additional Information, please contact Mica at (573) 751-3403 ext. 246.

Proposed Topics

- ADA Act and You
- Accident prevention
- Independent contractors dilemma
- Electrical: Safe Installation
- Stakeholders (Coal)
- Innovative safety training
- Powered haulage Part 49
- Stakeholders (Metals)
- EFS panel discussion
- Dust sampling
- Peabody Coal: What are we doing?
- Y2K powered equipment
- Workplace attitudes/the human factor
- Loss Control
- Miners Health/It's not just dust and noise.
- How can I join the HSA?
- Part 48 annual refresher: a new look

Location

Adam's Mark Hotel
Fourth and Chestnut Streets
St. Louis, Missouri 63102
Call (800) 444-ADAM (2326) or (314) 241-7400 for room reservations. Room rates are $66 for single and $86 for double occupancy (these figures DO NOT include a 14.1% room tax). When reserving rooms for the conference please specify that you are with the Holmes Safety Conference. Please be sure to make all hotel reservations by May 15,1999.

Conference registration form

Name: _____

Company: _____

Address: _____

City, State, Zip Code: _____

Phone (include area code): _____

Fax (include area code): _____

E-Mail: _____

Number of Attendees_____@ $125 Sub Total _____

Number of Spouses/Guests_____@ $75 Sub Total _____

GRAND TOTAL: _____

Make checks Payable to: Holmes Safety Assoc. and return with payment to: Mica Baldwin, Division of Labor Standards, Mine Safety and Health, P.O. Box 449, Jefferson City, MO 65102
Phone: (573) 751-3403 ext. 246;
Fax: (573) 751-3721

Medicine cabinet maintenance

By Kathleen Donnelly, Knight-Ridder Publications

Open your medicine cabinet. It's time to take inventory. Rusting can of shaving cream? Check. Fifty-six sample-size packets of Tylenol that came free in the mail? Check. Antifreeze green, nighttime, coughing, sneezing, hacking, just-put-me-out-of-my-misery potion? Check. Cracked and peeling tube of something so old you have no recollection of bringing it into the house, let alone applying it to a body part? Check. And, finally, eight-year-old prescription painkillers you got for your last oral surgery and are saving for a genuine emergency? Check.

Okay! Looks like you're prepared for just about anything. Still maybe you should keep the poison control center number next to the phone, just in case you actually use any of your supplies.

Actually, the medicine cabinet isn't a good place for medicine.

"First of all, there's the humidity and heat from bathing and so forth," says Carlo Michelotti, a pharmacist and senior vice president for professional affairs at the California Pharmacists Association. That heat and humidity, along with the bright lights of the bathroom, cause many medications to degrade rapidly.

For example, nitroglycerin, often used to relieve chest pain breaks down quickly, especially if it gets moist, says Joe Tung, supervisor of outpatient pharmacy at Stanford Health Services.

Child-proof lids might be impossible to open, but they aren't airtight. And that moisture-wicking cotton in the top of the aspirin bottle? It can be a breeding ground for bacteria, and some pharmacists say get rid of it.

Pharmacists suggest keeping your medicines in a cool, dry, dark location, out of the reach of children, dinner guests, and vindictive family members looking for blackmail material.

Once you find the perfect spot, what do you stock it with?

A good place to start is with the American Red Cross's suggestions for a first-aid kit Again, supplies will last longer if you keep them dry, cool and out of the sun: scissors and tweezers, needle and safety pins, triangular bandages, antiseptic towelettes, adhesive bandage strips in assorted sizes, two-inch and four-inch gauze pads, sterile roller bandages, disposable gloves' plastic bags, cold pack, thermometer, tube of petroleum jelly or other lubricant, soap, sunscreen, aspirin or non-aspirin pain reliever, anti-diarrhea medication, antacid, laxative and syrup of ipecac and activated charcoal (to help treat poisoning if so advised by the poison control center). The Red Cross also recommends that first-aid kits include flashlights, batteries and emergency blankets.

Most people will want to supplement those items with supplies that also meet their personal needs. For example, it's reasonable to keep a pain reliever on hand. But whether you choose aspirin, acetaminophen, ibuprofen or something else depends on your own needs and preferences, says Michelotti.

Similarly, you may want to keep a laxative, an antacid and a drug that counters nausea and diarrhea available. Antihistamines for allergies and various cold remedies might be handy, depending on your own recurring problems.

An antibiotic cream is a reasonable purchase, says Michelotti as well as a hydrocortisone cream used as an antiinflammatory for skin problems.

All prescription medications carry an expiration date, most often on their labels. Over-the-counter drugs must carry expiration dates too, usually embossed on the package. If yours don't have these dates, says Michelotti, it's a sign they're older than the expiration-date law, which he says goes back to the mid-1980s. His advice: Get rid of them.

Check other supplies as well: adhesive bandages in yellowing packages, antiseptic towelettes with torn corners and sterile gauze pads with rips in their packaging should all be replaced, as should anything in a tube that is cracked. Dump aspirin that smells like vinegar, it has begun to break down.

"But don't forget," Tung says, "go get replacements before you need to use them again."

*Reprinted from the March 14, 1998 edition of the **Washington Post** Health Section.*

THE LAST WORD…

Cheerfulness removes the rust from the mind, lubricates our inward machinery, and enables us to do our work with fewer creaks and groans. If people were universally cheerful, probably there wouldn't be half the quarreling or a tenth part of the wickedness there is. Cheerfulness, too, promotes health and immortality. Cheerful people live longest here on earth, afterward in our hearts.—Anonymous

If a man is destined to drown, he will drown even in a spoonful of water.—Yiddish Proverb

Occasionally in life there are those moments of unutterable fulfillment which cannot be completely explained by those symbols called words. Their meanings can only be articulated by the inaudible language of the heart.—Martin Luther King, Jr.

There's a proud modesty in merit; averse from asking, and resolved to pay ten times the gifts it asks.—John Dryden

The mind does not create what it perceives, any more than the eye creates the rose. —Ralph Waldo Emerson

Money does all things for reward. Some are pious and honest as long as they thrive upon it, but if the devil himself gives better wages, they soon change their party.—Seneca

A bone to the dog is not charity. Charity is the bone shared with the dog, when you are just as hungry as the dog.—Jack London

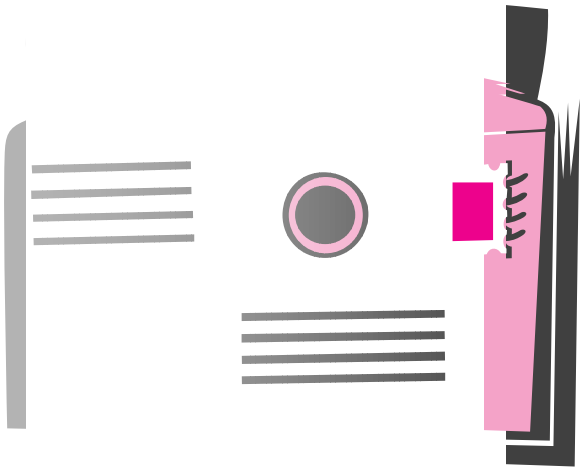
NOTICE: We welcome any materials that you submit to the Holmes Safety Association Bulletin. For more information visit the MSHA Home Page at www.msha.gov. We **DESPERATELY** need color photographs suitable for use on the front cover of the ***Bulletin.*** We cannot guarantee that they will be published, 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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1998-1999

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Shea Kirkpatrick	Supplier	CA
Steve Walker	Supplier	WV
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William Hoover	Emeritus	AZ
Al Simonson	Emeritus	MN
Harry Thompson	Emeritus	PA

*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
MSHA, Holmes Safety Association
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JOIN and GROW with us

Mark your calendar NOW!

Upcoming events:

- ***Mar. 30-31, M/NM Rescue Team Trainers Seminar, Nat'l Mine Academy, Beckley, WV***
- ***Apr. 15-17, SME/CAS Spring Conference, Marriott Griffin Gate Resort, Lexington, KY***
- ***Apr. 21-23, Kentucky Mine Safety '99, Landmark Inn's Mark II, Pikeville, KY***
- ***May 3-7, '99 International Coal bed Methane Symposium, Bryant Conf. Ctr., Tuscaloosa, AL***
- ***May 18-19, 6th Annual Western Mine Safety/ Health Workshop, Embassy Suites, Denver, CO***
- ***Jun. 2-4, JAHSA, HSA—Annual Meeting, Adams Mark Hotel, St. Louis, MO***
- ***Sep. 15-17, Bluefield Coal Show, Brushfork National Guard Armory, Bluefield, WV***