

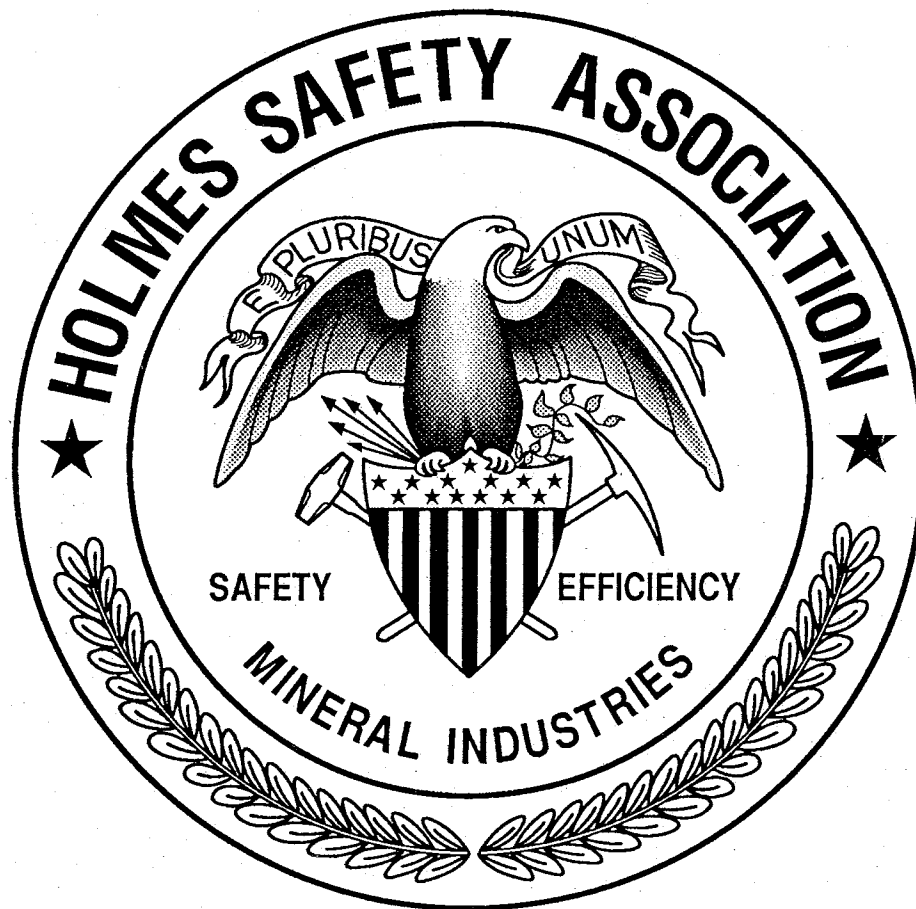
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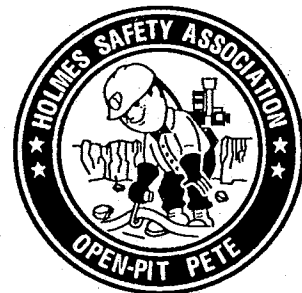
# BULLETIN


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December 1990





December 1990

# Table of contents

	<i>Page</i>
Topic—"Welcome New Members" .....	2
Topic—"From the National Secretary" .....	3
Safety topic—"The Dangers of Winter" .....	5
Accident summary—"Fatal Explosion Accident" .....	7
Safety topic—"Frictional Ignitions in Underground Coal Mines" .....	9
Safety reminder—"Safety Is" .....	12
Safety topic—"Substance Abuse and the Family" .....	13
Safety topic—"Alcohol & Marijuana Update" .....	14
Safety topic—"Accident Analysis" .....	19
Accident summary—"Fatal Machinery Accident" .....	22
Safety topic—"Survival Kit" .....	24
Safety topic—"Home Chemical Hazards" .....	25
Poster—"Stay Alive" .....	26
Poster—"REAP" .....	27
Announcement—"TRAM XVIII" .....	28
Announcement—"Great Lakes Conference" .....	29
Topic—"The Last Word" .....	30

**Please note:** The views and conclusions expressed in HSA Bulletin articles are those of the author and should not be interpreted as representing official policy of the Mine Safety and Health Administration.

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## KEEP US IN CIRCULATION

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The Holmes Safety Bulletin contains safety articles on a variety of subjects: fatal accident abstracts, studies, posters and other 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.

To report monthly chapter meetings, please use the postage-paid report form located in the centerfold of this Bulletin and return to the Holmes Safety Association. *Please remember to fold in thirds when mailing.*

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# Welcome New Members

<b>NAME</b>	<b>CHAPTER NO.</b>	<b>LOCATION</b>
Bonafide Mining Inc. (Mine #1)	9083	Jodie, WV
Mohigan Mining Company	9084	Morgantown, WV
Bland's Sand & Gravel Company	9085	West Jordan, UT
Terry Trucking, Inc.	9086	Madison, WV
Cardinal Engineering	9087	Chapmanville, WV
A & J Trucking	9088	Madison, WV
Max Mining & Minerals	9089	Madison, WV
Mason Land Reclamation	9090	Kansas City, MO
Raven Hocking Coal Corp. (Clifton Dock)	9091	Clifton, WV
Reigle Company	9092	Brunswick, NE
M & S Coal Company	9093	Williamstown, PA
Texas Utilities Mining Company (Martin Lake)	9094	Tatum, TX
Top Gun Coal Company, Inc.	9095	Harman, VA
Holt Basin Stone Quarries	9096	Oakley, ID
Darrell Hielsen	9097	Willard, UT
Green Power Inc.	9098	Ashland, PA
Baylor Rush, Inc.	9099	St. Clair, PA
H. B. Meliott Estate Inc.	10000	Warfordsburg, PA
Kneifs Sand & Gravel Inc.	10001	New Castle, NE

# From the National Secretary

It was an honor and a privilege to be elected to serve as National Secretary/Treasurer at the 1990 Phoenix, Arizona national meeting following the retirement of Bill Hoover. The Association is grateful for Bill's diligence, enthusiasm and dedication—which expanded our membership and safety promotional programs. Our task for the future is to continue that expansion.

I believe that the Holmes Safety Association performs a vital service in promoting safety and health in the mining industry, both on and off the job. My goals for this year are to organize three more state councils, four more district councils, and to increase the membership by 30% in the metal and nonmetal mining and related industries.

One of the major obstacles to achieving these goals is the lack of understanding of the Holmes Safety Association at the front-lines. To help overcome this handicap, we are planning a special booklet on the history and organization of the Joseph A. Holmes Safety Association and the Holmes Safety Association. The 75th anniversary of the Joseph A. Holmes Safety Association will be observed in 1991. We are working to make this booklet the best source of information on both associations.

We are also making efforts to improve the association in other ways. Having new people involved has brought different skills, knowledge, and abilities to the pro-

gram. We believe these changes will continue to bring further improvements to the products and services afforded by the Association. Here is a look at some of the activities currently being emphasized:

1. New look and content of the Holmes Safety Association *Bulletin*, our monthly publication.

2. Expanding the Holmes Safety Association into other areas of the United States, especially the south, southwest, and far west.

3. Greater involvement with metal and nonmetal industries.

4. Improving understanding of the Joseph A. Holmes and Holmes Safety Associations through the publishing of a booklet and the development of a slide/tape and/or videotape program.

5. Encouraging more input from industry into the *Bulletin*. Soliciting and publishing safety articles, announcements of special safety conferences or other related events, and summaries of council meetings.

6. New safety promotional efforts to increase seat-belt use, to educate on drug/alcohol abuse, and to encourage the development of safe work instructions for all work positions.

7. Continue to process awards while streamlining the procedures.

8. Supporting the committee appointed by President Joe Main, at the last national meeting, to review and make recommendations for revision to the Constitution and By-Laws of the Holmes Safety Association.

The Association currently functions with the following assistance:

1. Arlington MSHA-EPD:

This office provides support to the Association by preparing the *Bulletin* and by processing applications for membership charters and District Council Safety Competition reports. This office also provides funding in support of Holmes Safety Association administrative functions.

2. Beckley MSHA-EPD-Academy:

The National Secretary/Treasurer of both the Holmes Safety Association and the Joseph A. Holmes Safety Association is currently an Academy employee. The Secretary/Treasurer provides support to the Holmes Safety Association by accounting for all financial transactions, processing applications for Holmes Safety Association awards, providing assistance and guidance in setting up councils and chapters, promoting the Holmes Safety Association throughout the United States at meetings and through correspondence, and coordinating the work of all the committees with President Joe Main. The National Secretary/Treasurer also prepares material to publicize the Holmes Safety Association, ensures safety topics are available for publication in the *Bulletin*, and arranges, coordinates and promotes the National Holmes Safety Meeting. Our next national meeting will be held at Pipestem Resort State Park, near

Princeton, West Virginia on May 29 & 30, 1991.

In addition, support is provided to the Joseph A. Holmes Safety Association. This support includes: accounting for all financial documents, processing applications for Joseph A. Holmes Safety Association awards, promoting the use of these awards, coordinating and disseminating information to the various committees, and ensuring that all reports are prepared and audited for the National Joseph A. Holmes Board of Directors Meeting in May 1991.

This association, however, cannot be successful without the cooperation and assistance of those in the field. Your attendance at chapter, district council, state council and national meetings can contribute greatly to achieving the goal of Joseph A. Holmes: reducing accidents and fatalities to zero.

Encouraging your fellow miners/workers to learn more about both associations will be appreciated. Our activities to promote safety awareness and recognition for safe workers are limited only by our imaginations. The more participants, the greater the opportunity to work together to achieve a safe and healthful work, play, and home environment. Get the most out of these two associations--promote our programs and participate!

# THE DANGERS OF WINTER

Contributed by the National Mine Health and Safety Academy

The winter months have long plagued the coal mining industry as a time for major disasters. Mine explosions have occurred most often during cold weather periods. Mine management and miners should be particularly cautious during this season by observing the "Winter Alert."

Why is winter a bad time for explosions? This is the time when two of the main ingredients for explosions are at their peak: methane and coal dust. These two factors are year long problems, and we cannot drop our guard at any time. During the winter, methane and coal dust are greatly influenced by the forces of nature, and we must take extra precautions. Let us consider each of the ingredients:

## METHANE GAS

Methane gas is often found trapped in the pores of the coal seam. The gas may continually flow or "bleed" from any exposed surface, such as along the ribs of intake entries. Flow from the faces accelerates as the coal is mined. Mining systems have improved over the years and coal is now mined faster. Methane emissions have increased greatly with continuous and longwall mining.

Our best defense against methane is dilution by means of ventilation. If 30 cubic feet per minute of methane is liberated at the face, it takes more than 3,000 cubic feet

per minute of air to reduce it to less than 1%. If the air entering this place already has 1/4% methane, then it will take about 4,000 cubic feet per minute of air to reduce it to less than 1% (see Figure 1 for an exact formula).

If ventilation controls are properly installed and maintained, sufficient air at the face is more likely to be reliable. Remember, if curtains are torn, left down, or knocked down, or if doors are left open, or if back-up checks are not kept in good shape, it is very likely that air at the face will not be sufficient to continuously dilute methane.

In mines where retreat mining or longwall mining creates caved areas, the winter months create other methane problems. During these months, storm fronts create greater than usual drops in barometric pressure. These drops can result in methane migrating from gob areas into active workings. When the barometer drops, BEWARE!!!

## COAL DUST

We have already seen that we need plenty of air to control methane concentrations at the faces and outby areas. Now we will see that in the winter this air works against us by drying out the mine surfaces.

When outside temperatures turn cold, the cool, dry air traveling through the mines

absorbs both heat and moisture from the mine atmosphere. Mines undergo a process termed "drying out." Mines become less damp, and the coal dust is more easily placed in suspension. In addition, this process can create bad roof conditions.

A study done at one large mine showed that, under certain conditions, as much as 100,000 gallons of water were removed from the mine by the main fan in one day.

Removing the explosion threat from coal dust begins with removing the dust. Clean-up programs must be followed to remove loose coal, coal dust, and float coal dust. Next is the application of rock dust to reduce the combustible content of the mixture to safe percentages. Remember, the more coal dust removed prior to rock dusting, the less rock dust required.

The only sure way to know if mixtures are safe and legal is by conducting a laboratory analysis; however, experienced personnel can often spot areas which need more dusting by the color of the mixture.

The rock dust applied to newly mined surfaces is only a small proportion of the total rock dust required to maintain suitable conditions throughout the mine. As mining creates more dust, as ribs slough, as wetting and drying cycles occur, as equipment spills coal and coal dust, more and more rock dust must be applied to keep the mine safe.

## SUMMARY

During the winter months, concentrate on ventilation and rock dusting. Keep line curtains and tubing in good condition. Keep line curtains tight against the roof, and keep the area against the ribs clean. Do not park equipment in the intake or return airways since that will restrict the ability of the air to adequately ventilate the workings. If a curtain is torn down, see that it is replaced promptly. Use back-up checks to prevent short circuits. Keep stoppings in good repair and see that doors are closed. Clean up loose coal and coal dust. Take care of spills. Keep face equipment clean. Apply plenty of rock dust. Be alert all year, but remember that winter requires an extra effort.

### FIGURE 1

#### Appendix - Dilution Requirements

Mateer of the University of Kentucky advocates the following dilution formula:

$$Q = \frac{Q_g (1-X)}{X-B}$$

- Where:
- Q = Amount of fresh air in CFM
  - Q<sub>g</sub> = Methane flow in CFM
  - X = Limiting gas concentration
  - B = Concentration of gas in intake air

# Holmes Safety Association Monthly Safety Topic



## FATAL EXPLOSION ACCIDENT<sup>1</sup>

**GENERAL INFORMATION:** An underground explosion accident claimed the lives of three miners on July 31, 1990. The accident occurred at approximately 2:15 pm. The victims were identified as a drill and tamper, a tamper and shotfirer, and a coal drill operator. The State Department of Mines and Minerals was notified of the explosion at 2:35 pm, and an investigation was started immediately.

**Description of Accident:** On the day of the accident, the work cycle progressed normally until the time of the fatal blast. The unusual sound of the blast alerted miners on the surface that something was wrong. As a result, one of the surface miners instructed the scoop operator to go underground and attempt to determine the cause of the unusual sound. A short time later, a scoop operator returned to the surface with a roof bolt operator who had been injured by the blast. A second scoop operator, who had been loading coal in the number 6 entry when the explosion occurred, also came to the surface with the two other miners.

**Conclusion:** It was the conclusion of the State Investigating Committee that the blasting/drilling crew (victims) had positioned themselves in the crosscut between the number 1 and number 2 entries prior to detonating a three-way blast in the

number 1 entry. The right crosscut in the number 1 entry had not been driven according to projections. This resulted in the shot blowing through into the crosscut where the victims were located. It is believed that when the blast was detonated, flying material from the blown through shot resulted in a premature detonation of an undetermined amount of explosives being transported in the scoop bucket.

The State Investigating Committee recommended the following:

Mine workings shall be driven in accordance with projections.

Explosives, detonators, or other explosive items shall not be transported on the same trip with men.

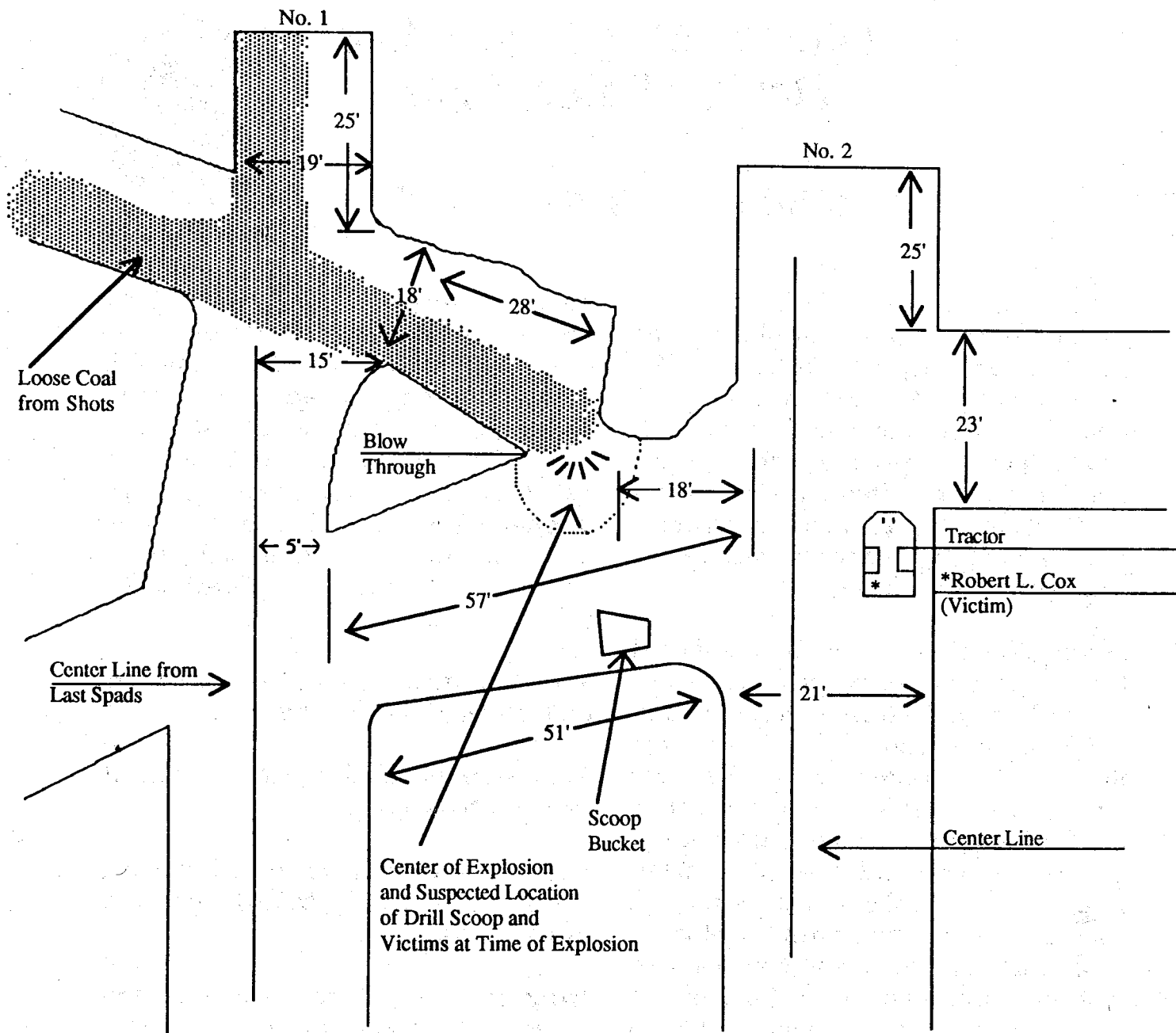
Explosives or detonators carried anywhere underground, by any person shall be in containers constructed substantially of non-conductive material, maintained in good condition, and kept closed.

When using the method of solid blasting, no more than one (1) face shall be charged or detonated.

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<sup>1</sup>Contributed by the Kentucky Department of Mines and Minerals





Sketch Not to Scale

Coal Mine Fatalities to Date -11-2-90										
Type	1986		1987		1988		1989		1990	
	UG	S	UG	S	UG	S	UG	S	UG	S
Roof fall	27	0	15	0	7	0	16	0	18	0
Haulage	5	12	11	7	4	12	1	4	6	6
Machinery	4	3	0	7	6	3	5	5	6	2
Electrical	8	0	3	3	1	1	2	2	5	2
Other	3	18	1	4	3	7	12	10	3	10
<b>Total</b>	<b>47</b>	<b>33</b>	<b>30</b>	<b>21</b>	<b>21</b>	<b>23</b>	<b>36</b>	<b>21</b>	<b>38</b>	<b>20</b>

# Frictional Ignitions in Underground Coal Mines

By Salwa El-Bassioni

Ignitions in coal mines are attributed to frictional and nonfrictional causes. Those causes classified as frictional include heat or sparks from the cutting bits of continuous miners, longwall shearers, roof bolters or rock drills, and other frictional impacts. Causes classified as non-frictional include sparks and hot metal generated during the welding and cutting operation, misuse of explosives, electric arcs or heated cables, fuel or fuel fumes contacting hot surfaces, excessive heat in thermal dryers, and others, such as ignition of combustible materials and gases other than methane, spontaneous combustion, rock bursts, overheating of brakes, etc.

A survey of the ignitions reported to MSHA by mine operators reveals that, of the 1026 ignitions reported in the period 1980-1989, 684 were frictional ignitions. This means that 67 percent of all reported ignitions for this time period were classified as frictional. Further analysis showed that 69 percent of these frictional ignitions involved continuous mining equipment, 20 percent involved longwall mining equipment, and the remaining 11 percent involved roof bolters, or cutting machines and other impacts (see Table 1 for details).

## What causes frictional ignitions?

Methane gas is liberated from coalbeds

and surrounding strata during the extraction process. Similarly, fine coal dust is generated during this process. The necessity of mining coal at progressively greater depths, using high production longwall methods, has created a situation where very high methane emission levels are generated in the underground mine workings. These high methane concentrations are generally diluted to safe levels by the mine ventilation system. However, liberation of methane is often so substantial that the existing ventilation system cannot consistently dilute the methane to safe statutory levels. This is a significant problem in localized areas in the vicinity of the working face. Here, methane accumulates due to obstructions caused by the coal extraction equipment, or where methane feeders exist in the roof, floor, and rib. Methane and coal dust can be ignited by frictional and non-frictional sources of energy. Frictional ignitions occur when energy is generated in the form of heat or sparks between the cutting bits and impurities such as sandstone, sulphur, or other pyrites in the coal seam, mine roof, or mine floor.

## What is the concern?

Although most of the frictional ignitions that have occurred since 1980 in U.S. coal mines did not cause injury or property

damage, the explosion hazards associated with frictional ignitions of methane and coal dust at the working face of an underground coal mine have long been recognized. For example, in 1979 an explosion that resulted from frictional ignition claimed the lives of 14 people in a mine in Nova Scotia, Canada.

The problem of controlling frictional ignitions has and will continue to be a major concern of the U.S. mining industry as deeper and gassier seams are mined, and as production rates and productivity increase.

#### **How do we combat frictional ignitions?**

To address the problem and frequency of frictional ignitions, the Bureau of Mines, U.S. Department of Interior, funded and conducted in-house studies from 1979-1988. Laboratory tests showed that a mushroom-shaped tungsten-carbide tip for a conical cutting bit caused less face sparking than a conventional bit, and showed significantly less total bit wear. However, frictional ignitions did occur with the worn, flat tungsten carbide tip of a non-rotating conical bit without exposure of the steel shank. Testing also indicated that an increased angle of attack significantly reduced the frequency of ignitions. These tests were supported by in-mine tests. The problem of frictional ignition, and the effectiveness of water sprays in reducing these ignitions, was addressed by laboratory and field studies

conducted by the Bituminous Coal Research National Laboratory. These studies showed that modification of longwall shearer drums to include anti-ignition spray systems (water sprays behind each cutting bit to quench the hot streaks created by the bit cutting rock) successfully reduced the frequency of frictional ignitions. However, the design of anti-ignition back spray systems for a conical bit on a ripper drum is more difficult because a wet-head ripper drum is required in order to install a spray nozzle behind each bit. Additionally, there may be insufficient physical space on the ripper drum to install the spray nozzle directly behind each bit. Because wet-head cutter drums for continuous mining machines are not commercially available at present, operators of mines that experience frictional ignitions should use the following control techniques.

1. Use mushroom-shaped tungsten-carbide bit tips rather than conventional steel-tipped bits. Ignition is less likely to occur with harder, more durable material. These tips are commercially available.
2. Increase the bit attack angle within the capability of the cutting motors. An increased angle of attack causes greater torque loads. This will decrease the wear-flat tip area and reduce sparking.
3. Establish a maintenance program to ensure proper operation of water sprays and conformance with water pressure requirements in the ventilation plan.

4. Establish a schedule to replace bits frequently and to prevent bit tips from wearing flat. Ignition is much more likely to occur with a worn flat bit tip. The inconvenience and expense of replacing worn tips is less costly than the consequences of an ignition.

5. For longwall shearer drums, which are usually equipped with an anti-ignition water spray system, and for wethead continuous miners, if available, carefully orient water spray nozzles that are installed directly in the back of each cutter bit so that the nozzle impinges onto the freshly cut sandstone surface behind the bit.

These and other techniques have been successfully implemented at mines where frictional ignitions are a problem.

### Ignitions in Coal Mines

#### 1980-1989

Year	80	81	82	83	84	85	86	87	88	89
Frictional	90	53	60	57	64	77	64	76	69	74
Non-Frictional	27	36	21	22	32	40	45	28	45	46
Total	117	89	81	79	96	117	109	104	114	120

### Frictional Ignitions in Underground Coal

#### Mines By Type of Equipment

#### 1980-1990

Year	80	81	82	83	84	85	86	87	88	89	90 <sup>1</sup>
Continuous Miner	65	42	33	41	38	63	43	42	48	54	44
Longwall	14	4	16	10	15	8	13	26	17	17	17
Roof Bolter	8	6	10	1	7	2	2	0	3	0	0
Others <sup>2</sup>	3	1	1	5	4	4	6	8	1	3	0
Total	90	53	60	57	64	77	64	76	69	74	61

<sup>1</sup>Six months of data

<sup>2</sup>Cutting machines and other impacts

## Dear HSA Bulletin Readers:

Thanks for your support!!!

We want to thank the readers for responding to our questionnaire regarding the HSA Bulletin. The response has been outstanding, and the editors are busy going over the questionnaires. Many of those who responded wanted to see more articles on health, surface, and metal and non-metal mining topics. Look for more articles about these topics in future issues of the HSA Bulletin. All of your comments will assist us in putting together future articles, and we hope that you will keep your suggestions coming!!

HSA Bulletin Staff  
4015 Wilson Boulevard  
Room 531  
Arlington, Virginia 22203-1984



## We're sorry!!

It has come to our attention that a number of copies of the November issue of the Bulletin were printed and/or bound incorrectly. While we do not know the full extent of this problem, we apologize for any inconvenience this may have caused. We are working with our printing contractor to identify the cause of the problems and to see that they are corrected.

# Suggestions For Coping With a Family Member or Friend Who is Using Drugs

## Try To:

- \* in a calm and honest way, speak to the substance abuser about his or her behavior and its day-to-day consequences. Let him or her know that you care and are concerned about his or her welfare
- \* become knowledgeable about drug abuse and its effects. For information on drug abuse, you can write to the National Clearinghouse for Drug Abuse Information, P.O. Box 416, Kensington, MD 20795
- \* talk to someone you trust who can help you deal with your feelings. This person may be an employee assistance counselor, a treatment program professional, a family physician, a clergyman, or a friend.
- \* establish a healthy atmosphere in the home and try to include the substance abuser in family life. Make sure the individual feels as though he or she has a place in the family. The home should be a resource to him or her.
- \* explain the nature of addiction as an illness to the children in the family.
- \* be patient and live one day at a time. Addiction generally takes a long time to develop, and setbacks or relapses do occur along the road to recovery. Try to accept this with calmness and understanding.
- \* understand your emotions. Depression, anger, and self-pity are common reactions among the family -- and they can slow re-

covery. Facing and overcoming them will make you feel better, no matter what happens.

## Try not to:

- \* punish, threaten, bribe, or preach. Don't be a martyr and don't accept guilt for a loved one's use of drugs. Avoid emotional appeals - they may only make the problem worse.
  - \* cover up or make excuses for the addicted person, and don't shield the user from the consequences of his or her behavior.
  - \* take over the substance abuser's responsibilities, leaving him or her with no sense of importance or dignity.
  - \* let the addicted person exploit or take advantage of you.
  - \* argue with the addicted person when he or she is under the drug's influence.
  - \* be discouraged by the user's denial of the problem and the excuses of the addicted person. These are normal symptoms of drug dependency.
- \*\*\*Call 1-800-662-HELP for drug treatment referral in your community\*\*\*

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Courtesy of the National Institute on Drug Abuse. Developed by the Community Task Force on Cocaine Abuse Initiatives of the Boulder Chamber of Commerce; Mental Health Center of Boulder City, Inc.

# TRAFFIC'S BATTLE OF THE YEAR SOCIETY VS. HOLIDAY ALCOHOLIC

THREE KILLED IN AUTO ACCIDENT ... excessive speed ... sharp curve, driver had been drinking. Similar terse words from traffic accident summaries sketch the tragic results of one of the most urgent problems of modern society ... drinking and driving.

If history repeats itself, the approaching year-end holidays are again destined to be tragic for many on American streets and highways. The combination of alcohol, weather conditions, long hours of darkness, and the universal spirit of holiday celebration pile up serious odds against safe travel.

Another factor that makes holiday driving hazardous is the lack of public understanding, or at least acceptance, of the lethal combination of drinking and driving. Too many people think alcohol is a problem only for those obviously intoxicated. Unfortunately, this is not the case. The vast majority of the holiday celebrants, the social drinkers (those who have "only a few drinks" and then try to drive home), hamper their driving ability at a time when other driving conditions are poor.

Safe driving in today's traffic demands mental alertness and physical fitness. Alcohol affects the body in much the same manner as chloroform, ether or other anesthetics. It is not a stimulant, but a drug that is medically classified as a

depressant. Use of alcohol affects coordination, slows reflexes, and impairs a driver's judgement. Those who feel they are better drivers after "a few drinks" are merely victims of the influence of intoxicants.

At the same time alcohol is slowing coordination and physical reactions, it is taking the wraps off inhibitions, and making us feel we can do things that we would never try in a sober moment. This means a driver who has had only one or two drinks may not be able to take the necessary evasive actions to prevent an accident. It is not necessary for a driver to be "under the influence", in the legal sense, to be a dangerous driver. Drinking reduces the ability of any driver. Even two cocktails may reduce visual acuity as much as wearing dark glasses at night.

Let's all dedicate ourselves to the campaign to eliminate drinking and driving.

**As the National Safety Council warns:**

**"IF YOU DRIVE, DON'T DRINK"  
"IF YOU DRINK, DON'T DRIVE"**

## MARIJUANA UPDATE

Marijuana is still by far the most extensively used illicit drug. According to the latest survey (1985), almost 62 million Americans have tried marijuana in their lifetime, and 29 million used the drug in the past year. Current use of marijuana decreased from 20 million in 1982 to 18 million in 1985 for the 12 and older population. Among employed, 20-40 year-olds, 16 percent reported using marijuana at least once in the past month.

Starting with 1979, we have seen a gradual decline in marijuana use among high school seniors. Marijuana use peaked in 1978, when almost 11 percent of high school seniors reported daily or almost daily use, and has gradually declined to 2.7 percent in 1988.

A 1985 National Institute on Drug Abuse (NIDA) survey of clients admitted to drug abuse treatment programs shows that one in seven clients reported marijuana as their primary drug of abuse, second only to heroin.

NIDA has supported extensive research into the effects of marijuana. Findings from several of these studies follow.

### **Effects of Marijuana on the Brain**

Significant progress has been made recently by several NIDA grantees in determining how marijuana acts on the brain. Several animal studies have focused attention on the hippocampus. The hippocampus is the major component of the brain's limbic system, and is crucial for learning, memory, and the integration of sensory experiences with emotions and motivation. Taken together, these results may provide the first clues to the mechanism underlying marijuana induced euphoria and loss of memory, and provide the definition evidence for a toxic effect of marijuana on brain nerve cells.

Researchers have found that THC, the psychoactive ingredient in marijuana, changes the way in which sensory information is received and acted on by the hippocampus. Studies have found that the information processing system and the activity of the neurons and nerve fi-

bers are altered. Investigations have also shown that THC acts directly on a part of the brain that scientists believe may underlie memory.

Two other studies found evidence that chronic THC exposure damages and destroys nerve cells and causes other pathological changes in the brain. The loss of cells appears to be similar to the loss seen with normal aging. This raises many concerns. One of these concerns is that mild functional losses due to aging may interact with the effects of marijuana in an additive fashion, possibly placing long-term marijuana users at risk for serious or premature memory disorders as they age.

### **Effects on the Lungs**

Scientists at the University of California, Los Angeles, found that the daily use of 1 to 3 marijuana cigarettes appears to produce approximately the same lung damage and potential cancer risk as smoking 5 times as many tobacco cigarettes. The study results suggest that the way smokers inhale marijuana, in addition to its chemical composition, increases the adverse physical effects. The same lung cancer risks associated with tobacco also apply to marijuana users even though they smoke far less. The study findings refute the argument that marijuana is safer than tobacco because users only smoke a few marijuana cigarettes a day.

### **Effect on Heart Rate and Blood Pressure**

Recent findings indicate that smoking marijuana, while shooting up cocaine, has the potential to cause severe increases in heart rate and blood pressure. Each drug alone produced cardiovascular effects.



When they were combined, the effects were greater and lasted longer. The heart-beat of the subjects in the study increased 29 beats per minute with marijuana alone and 32 beats per minute with cocaine alone. When the drugs were given together, the heart rate increased by 49 beats per minute and the increased rate persisted for a longer time. The drugs were given with the subjects sitting quietly. In normal circumstances, an individual may smoke marijuana and inject cocaine and then do something physically stressful that may significantly increase the risk of overloading the cardiovascular system.

### **Effect on Reproduction in Women**

The first controlled study of women and the acute effects of marijuana has shown that smoking a single marijuana cigarette after ovulation decreases the plasma level of one of the hormones essential for normal reproductive functioning. The luteinizing hormone is essential for implantation of the fertilized egg in the uterus. A single dose of marijuana during the luteal phase of the menstrual cycle suppressed the level of this hormone, suggesting the possibility that chronic use of marijuana may adversely affect reproductive functioning in women.

## **Additional Research Advances**

### **Marijuana Found in Blood of Accident Victims**

A study recently examined 1,023 trauma patients admitted to the shock trauma unit at the Maryland Institute for Emer-

gency Services in Baltimore. This unit received only the most seriously injured accident victims directly from the scene of the injury. This study found that one-third of all admitted patients had detectable levels of marijuana in their blood, indicating use of marijuana within two to four hours prior to admission to the unit. The study also found that four of every ten persons 30 years old or younger were under the influence of marijuana at the time of the accident.

### **Heavy Users of Marijuana Fail to Confront Problems**

A series of in-depth case studies, by a research team at the Center for Psychosocial Studies in New York City, found that adults who smoked marijuana daily believed that it helped them function better and improved self-awareness and relationships with others. In reality, the drug served as a buffer enabling users to tolerate problems, rather than make changes that might increase their satisfaction with life. The study indicated that these subjects used marijuana to avoid dealing with their difficulties and that the avoidance inevitably made their problems worse. The most striking observation is the discrepancy between what study participants say and what is actually going on. Although users believed the drug enhanced understanding of themselves, it actually served as a barrier against self awareness.

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Marijuana Update courtesy of the National Institute on Drug Abuse, Rockville, MD 20857

Please fold in thirds before mailing

5000-22  
(Rev. 12-78)



## Holmes Safety Association Meeting Report Form

(Please take the time to fill in the questionnaire at the bottom)

Fold here

For the month of

TOTAL meetings this month

TOTAL attendance this month

Chapter number  (See address label, if incorrect, please indicate change)

NOTE: We must have your correct chapter number to give you credit for your HSA meetings

Signature

Telephone no.

Title

Fold here

1. Fill out      2. Fold and **TAPE!**      3. Free mail in

DO NOT USE STAPLES — The U.S. Postal Service says they jam the automatic sorters. Sharply creased folds will mail without tape

NOTE: Be sure our address shows on the other side

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**BULLETIN QUESTIONNAIRE:**

- How many people in your chapter see the HSA Bulletin each month? \_\_\_\_\_
- Do you like the Bulletin in its present format? \_\_\_\_\_
- Would you like to hear more from other District Councils? \_\_\_\_\_
- What articles would you like to see?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. What articles or features do you especially like? Please rank them 1-5 in order of appreciation with 1 being the highest.

- |  |   |
|--|---|
| <input type="checkbox"/> A. Safety topics            | <input type="checkbox"/> B. Accidents summaries |
| <input type="checkbox"/> C. Posters                  | <input type="checkbox"/> D. Announcements       |
| <input type="checkbox"/> E. District Council reports |   |

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4015 Wilson Boulevard  
Arlington, Virginia 22203-1984

**December 1990**

# ACCIDENT ANALYSIS AND PROBLEM IDENTIFICATION IN THE NATION'S MINES

By Phillip J. Cozort, II, Ed.S., Ph.D., National Mine Health and Safety Academy

Accident Analysis and Problem Identification (AAPI) is a method of analyzing accidents at a mine. Its objective is to identify problems directly related to specific accidents. Certain questions are addressed when performing the analysis: What are the primary causes of problems at the mine? What are the specific problems? What types of accidents are occurring as a result of these specific problems? What procedures and recommendations can be initiated to abate causes, thus, decreasing the problems and accidents?

For AAPI to be successful, it must be administered in cooperation with labor, management, and government. Teamwork is vital for an AAPI analysis to be successful.

For those miners/workers who work with sources of energy or handle hazardous materials, four types of physical barriers can be used to protect them from injury in the event of an unplanned, accidental release of energy or hazardous material.

**Barriers on the energy source:** The primary purpose is to prevent the release of unwanted energy.

**Example:** A roof may be bolted or supported; a vehicle can have brakes or speed control.

**Barriers between the person and the energy source:** The primary purpose is to prevent unwanted energy from contacting the person.

**Example:** Guards on moving parts of equipment; a shield between a welder and other workers.

**Barriers on the person:** The primary purpose is to reduce the force of the unwanted energy.

**Example:** Goggles; hard toe shoes; self-contained breathing apparatus.

**Barriers that separate the person from the unwanted energy by time or space:** The primary purpose is to prevent the unwanted energy from contacting the person.

**Example:** Removing all persons from blasting areas (space barrier). Re-entry to blasting area at such time as concentrations of smoke, dust, or fumes have been reduced to safe limits (time barrier). Questions related to physical barriers which are asked during an analysis are:

Was the implementation of this barrier possible and practical?

If it was possible and practical, was it

provided to the miners? If it was provided, was it used by the miners? If it was used, did it fail?

If the presence of a physical barrier will not prevent the accident from occurring, a human barrier must be considered as relating to the cause of the accident. Human barriers are information, tools and equipment, knowledge, capacity, and incentive.

Information consists of the directions and guidance a miner receives to perform a task.

Proper tools and equipment are needed to accomplish a task.

Knowledge (Know-how) is a prerequisite for effectiveness. Unlike information which is given to a miner bit by bit, know-how is the knowledge obtained by the miner's experience and training.

Capacity is a miner's physical or mental condition, which must be proportionate to the demands of the task.

Incentive is the reward expected by the miner for doing the job right, or the punishment that may result from his or her failure to do so.

To determine if there was an information barrier, we ask the question: **WAS THE MINER GIVEN DIRECTION AND GUIDANCE ON HOW TO DO THE JOB?** Direction and guidance are our key words since they cover both expected perform-

ance and feedback on performance.

Example of an information barrier:

The roof bolter is not told that the roof control plan requires the torque testing of the first bolt and one out of every fourth bolt installed. We should not be surprised if the task is done incorrectly. The absence of information created a barrier to human performance.

To determine if tools or equipment were barriers we ask: **WERE THE APPROPRIATE TOOLS OR EQUIPMENT AVAILABLE, AND WERE THEY PROPERLY DESIGNED FOR THE JOB?**

Example of tools as a barrier:

A roof bolt was used to take down loose top because a slate bar was not provided.

The question we ask to determine if there was a knowledge barrier is: **DID THE MINER KNOW HOW TO DO THE JOB AS IT IS SUPPOSED TO BE DONE?**

Example of a knowledge barrier:

The roof bolter is told to torque test the first bolt and one out of every four bolts installed. If this isn't done properly because the miner doesn't "know how" to use the torque wrench, we have a knowledge barrier to human performance.

Impairments of physical and mental capacities have the potential of turning a hazardous situation into a disaster for the

individual and others. To determine if there was a capacity barrier we ask: DID THE TASK EXCEED THE CAPACITY OF THE MINER PERFORMING IT?

Example of a capacity barrier:

A physical (capacity) barrier would be lifting too much without assistance. A mental (capacity) barrier would be inattention to a task.

To determine if incentives have created a barrier to human performance we ask: HAS THE MINER BEEN REWARDED FOR DOING THE JOB INCORRECTLY OR PUNISHED FOR DOING IT CORRECTLY?

Example of an incentive barrier:

The roof bolter is told to torque test the first bolt and one out of every four bolts installed. The bolter knows how to do it but in not doing so he/she can get bolted up before the continuous miner finishes the next cut. While waiting on the miner, he/she can take a break. The foreman knows what's going on, but declines to intervene. The bolter is rewarded for unsafe performance resulting in an incentive barrier to proper performance.

The following rules can be useful in formulating the outcome of AAPI and in making subsequent recommendations.

1. Where a physical barrier is possible and practical, but not provided or has failed, an engineering solution is called

for. The physical barrier must be provided and maintained.

2. Where a human barrier is the obstacle, the barrier must be removed.

a. If the lack of information is a barrier, corrective actions are needed to ensure that miners routinely receive the needed information and directions.

b. If tools and equipment are lacking, the right tools or equipment must be provided or the job redesigned.

c. If incentive is lacking, or improper performance is unjustly rewarded, a just reward system should be established.

d. If lack of knowledge is a barrier, an effective training program is called for.

e. If the miner's physical or mental capacity is questionable, his or her impairment must be evaluated and the situation improved.

AAPI can have a profound impact on health and safety, if it is carried out in an organized and proficient manner. It can significantly reduce incident rates, change health and safety attitudes of both labor and management, and encourage a high degree of cooperation between management and labor.

# Holmes Safety Association Monthly Safety Topic



## FATAL MACHINERY ACCIDENT

**GENERAL INFORMATION:** A primary welder, age 51, was fatally injured at approximately 11:50 a.m. on August 26, 1990, while attaching a chain across a conveyor belt. The conveyor belt separated from the cable attachment, allowing the welder and the belt to roll down the inclined conveyor approximately 300 feet and then to fall 40 feet to the ground. The victim had a total of 13 years mining experience, six years of which were at this mine site.

The accident occurred at a multiple bench limestone quarry. The limestone was drilled and blasted by outside contractors. Blasted rock was loaded into haulage trucks with front-end loaders and hauled to the primary crusher. Crushed material was conveyed to surge piles where it was processed by secondary and tertiary crushing, screening, and washing. The sized material was then stockpiled for customer load out.

The primary crusher and quarry operations produced on one, 10 hour shift, five days a week. An 8 hour shift was worked on Saturdays. The secondary process plant worked two, 10 hour shifts a day, six days a week.

**DESCRIPTION OF ACCIDENT:** On the day of the accident, the victim reported for work at 7 a.m., his normal starting time. As a primary welder, he received his daily assignment from the mine foreman.

The victim was assigned to assist in the repair of a conveyor belt that had separated at a splice. One end of the conveyor belt had been pulled up over the head pulley from underneath and secured to the conveyor structure using a chain. The other end was being pulled up the conveyor structure from the tail pulley end using a crane. The crane cable was attached to the conveyor belt end with a steel plate attachment using two bolts through the conveyor belt.

Work proceeded normally until approximately 11:45 a.m. The lower conveyor belt end had been pulled into position. The victim climbed off the conveyor walkway onto the conveyor belt, and was in the process of attaching a chain to secure the belt so the pulling attachment could be removed. During this process, the bolts on the attachment pulled through the conveyor belt, allowing the belt and the victim to roll down the conveyor. The

quarry foreman had just walked past the splicing activities and was nearing the take-up pulley section when the conveyor belt pulled apart from the attachment. He immediately started to descend the walkway, recognized he couldn't make it, and laid down in a curled position on the walkway where he was protected from the conveyor belt. A crane operator recognized something was wrong when the crane jumped and the cable went slack. He stepped out of the cab and saw the victim descending the conveyor on the belt. He called to another miner who was near the crane and had seen the victim on the descending belt. Three employees who were assisting in the splice repair, were on the conveyor structure when the conveyor pulled from the attachment. Two employees were on the head pulley platform where they had been in radio contact with the crane operator while the belt had been pulled up the conveyor. They did not see the victim go down the conveyor. The third employee was just below the victim on the walkway and saw him go down the conveyor. He immediately started down the conveyor toward the accident scene. The victim descended on the conveyor belt approximately 300 feet before he was thrown off and fell 40 feet to the ground.

The crane operator and the miner near the crane jumped into a truck and proceeded to the area beneath the conveyor structure. In transit they radioed one of the other miners to call for emergency assistance. The crane operator arrived at the scene and found the victim in the mud

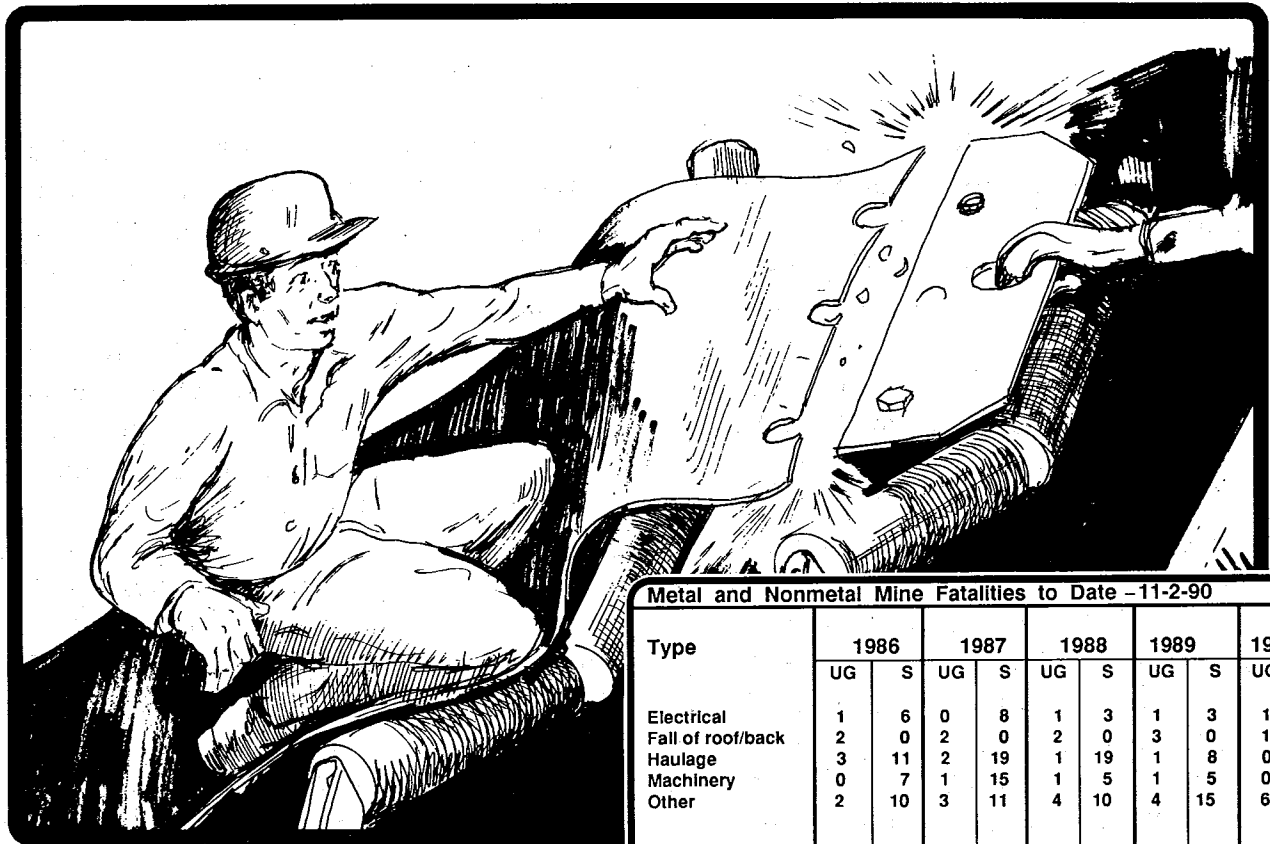
and water on the north side of the conveyor between the conveyor structure and quarry wall. The quarry foreman also arrived at the scene, then left to call for assistance from the foreman's trailer. He called the Township Life Squad, who arrived in approximately seven minutes. A coroner was then summoned and the victim was pronounced dead at the scene. He died of multiple blunt force injuries.

**PHYSICAL FACTORS INVOLVED:** The crane used to pull the conveyor belt into position was a 50 ton, Lorain MCH, serial #37077. The conveyor system was approximately 408 feet in length. The 5 ply conveyor belt was 42 inches wide by 849 feet long. The belt was approximately two years old.

The attachment used to pull the conveyor belt into position was fabricated by the company. The attachment was constructed of two steel plates which were bolted together over the end of the belt. It was provided with three bolt holes but only two bolts were used to secure the conveyor belt. The steel plates were 12-5/8 inches wide and the two bolt holes being used were 9-1/2 inches apart. The two holes through the conveyor belt were 3-1/2 inches from the end of the belt.

**CONCLUSION:** The direct cause of the accident was the failure to provide and use an adequate attachment which would hold the weight of the belt without failing. Contributing to the seriousness of the injury was the failure to wear a safety belt.





Type	1986		1987		1988		1989		1990	
	UG	S	UG	S	UG	S	UG	S	UG	S
Electrical	1	6	0	8	1	3	1	3	1	2
Fall of roof/back	2	0	2	0	2	0	3	0	1	0
Haulage	3	11	2	19	1	19	1	8	0	18
Machinery	0	7	1	15	1	5	1	5	0	7
Other	2	10	3	11	4	10	4	15	6	14
<b>Total</b>	<b>8</b>	<b>34</b>	<b>8</b>	<b>53</b>	<b>9</b>	<b>37</b>	<b>10</b>	<b>31</b>	<b>8</b>	<b>41</b>

## WHAT TO KEEP HANDY IF DISASTER STRIKES

### Recommended Survival Kit

Every year the Nation experiences tornadoes, floods, severe thunderstorms and heavy snowstorms. In addition, there are manmade disasters, such as when a neighborhood has to be evacuated because a truck carrying toxic chemicals overturns on the nearby roadway.

The American Red Cross has prepared a "Family Survival Guide" booklet, available for 50 cents at local chapters, to help people prepare for disaster. The organization has also issued free pamphlets on fire safety, hurricanes and earthquakes.

To survive the first 48 hours after a disaster, keep a covered trash can filled with:

- Canned food for 2 days
- Manual can opener
- 2-3 gal. bottled water
- 1 blanket per person
- 2 flashlights
- Battery-powered radio
- Extra batteries
- Fire extinguisher
- Prescription medicines
- First-aid kit
- Moist towelettes

Source: Terri Shaw, Washington Post

# Home Chemical Hazards

Hazardous chemicals are present in virtually every American home. They're in your cleansers, your disinfectants, and even in the motor oil in your garage. Hazardous household chemicals may be grouped into four categories: reactive products, corrosives, flammables, and toxics.

Reactive products contain unstable compounds that may react with air, water, or other chemicals, yielding dangerous results. An example of this is calcium hypochlorite - a powder used to disinfect swimming pools. It can react with paint or kerosene to produce explosive and toxic chlorine gas.

Corrosives are strong acids or bases that "eat" away other substances. Examples include chlorine bleach (a powerful acid), and drain opener (a powerful base). Corrosives can cause severe burns on contact and their vapors can burn the eyes. They are also poisonous if ingested.

Flammables are ignitable substances like the vapors of gasoline and furniture polish. The substances pose a fire hazard if they are improperly stored or used.

Toxics have perhaps the greatest potential for danger because, in addition to poisoning individual users, they can pollute the environment if disposed of improperly. Some examples are herbicides and insecticides.

Other hazardous household products include anything in a aerosol can. These can explode and disperse their contents in the air that you breathe.

Be a smart consumer. Read a product label before you buy, know what potential hazards exist, and act accordingly.

## It Makes Sense

While most accidents are caused by the mistakes of people, some involve failures of equipment. However, even these mechanical failures can frequently be traced back to someone's mistake, such as not being alert to defects in equipment, or not reporting defects when they are observed. Your senses can help you spot potential problems.

**Sight:** Be on the lookout for accidents in the making.

**Hearing:** Listen for unusual sounds - they could mean defective or improperly adjusted equipment.

**Smell:** Your sense of smell can help you detect many gas or chemical leaks, overheated bearings, burning brakes, and arcing electricity.

**Touch:** Your hands can warn you of such potential dangers as excessive vibration and overheating.

And for good measure — always use your **COMMON SENSE!**

**HAVE FUN DURING THE HOLIDAYS**

**BUT REMEMBER**



**STAY ALIVE - DON'T DRINK AND DRIVE!!!!**

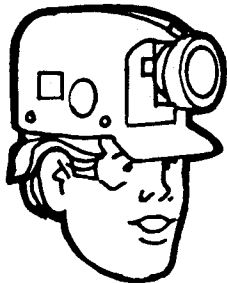
# Roof Evaluation — Accident Prevention

R.E.A.P. — a program developed to promote health and safety awareness in mining



**Spend your holidays at  
Home... NOT INBY  
supported roof!**

Miners: We'd like your help in creating safety slogans for these posters. If your slogan is used you will be given credit and your name, mine, and state will be printed on the poster. Please send your suggestions to: MSHA, Educational Policy and Development, 4015 Wilson Blvd., Rm. 519, Arlington, VA 22203



December 1990

27



**MARK YOU CALENDAR!  
PLAN YOUR BUDGET FOR 1991!  
TO INCLUDE:**



TRAM is a non-profit organization whose members represent all segments of the U. S. mining industry: management, labor, government, universities and community colleges and manufacturers and consultants. TRAM XVII will have three concurrent tracks appropriate to both surface and underground coal, metal/nonmetal and industrial mineral mining covering such areas as:

- Supervisory/Management Training
- Technology/Maintenance/Preparation Training
- Health and Safety/Train the Trainer

Special events include hands-on workshops on how to effectively use computers in training, exhibitors' reception of training resources, banquet, breakfast, and the opportunity to participate in the most widely attended mining training conference in the nation.

**Please send abstracts of proposed papers  
(one page in length) to:**

Robert L. Frantz  
TRAM 18 Co-Director  
The Pennsylvania State University  
126A Mineral Sciences Building  
University Park, PA 16802  
(814) 865-7472

**Communicate your recommendations for  
a presentation to:**

Lloyd H. Putzek  
TRAM 18 Program Chairman  
Kerr-McGee Coal Corporation  
P. O. Box 727  
Harrisburg, IL 62946  
(618) 268-6311

Abstracts and recommendations should be received by Friday, February 1. Presentations that include examples of training applications in mining operations will be favored. The Program Planning Committee will be meeting on Thursday, December 6 at the Airport Ramada Inn, Pittsburgh, Pennsylvania to plan the program.

If you are interested in reviewing the types of abstracts/papers that are typically presented at TRAM conferences, a limited number of proceedings are available from TRAM XV and XVI at a total cost of \$30.00.

# **ANNOUNCEMENT**

## **FROM THE MICHIGAN STATE GRANT PROGRAM**

### **GREAT LAKES MINE SAFETY AND HEALTH TRAINING REGIONAL CONFERENCE JANUARY 29, 30, 31, 1991**

The Michigan State Grants Program is holding a regional conference on mine health and safety training in January 1991.

We invite you and your staff to attend a regional conference created to improve safety training programs and to assist in reducing accident frequency and severity rates.

Our conference will be co-hosted by Michigan Technological University, (the former Michigan College of Mines 1885) and the Michigan Mineral Resources Association (MMRA). Our facility is located in East Lansing, Michigan at the Holiday Inn University Place.

The major theme of our conference is: "SAFETY ACHIEVEMENTS THROUGH ADHERENCE TO SAFETY AND HEALTH REGULATIONS."

Instructors and technical support people will be assisting from the states of Ohio, Indiana, Illinois, Wisconsin, and Minnesota. In addition, speakers from the Mine Safety and Health Administration, the Michigan Department of Labor, as well as industry and equipment specialists will present informative and interesting topics.

A primary objective of this conference is to provide discussion and examples to explain the process of managing the safety environment through: "JOB SAFETY ANALYSIS."

We look forward to having you and your staff participate with us in addressing our most important issues in safety/health in the mining industry.

The registration fee for the conference is \$35.00. Checks should be made payable to the Michigan Mineral Resources Association (M.M.R.A.) and mailed to Dan Alder, Michigan Technological University, PSPD — Mine Safety, 231 Fisher Hall, Houghton, Michigan 49931. For additional information on the conference, you may contact Mr. Alder at the above address or by phone at 906-487-2272.

Please contact the Holiday Inn for room reservations at 517-337-4440 by January 2, 1991.

# The Last Word...

"The two biggest sellers in any bookstore are the cookbooks and the diet books. The cookbooks tell you how to prepare the food and the diet books tell you how not to eat any of it." (Andy Rooney)

"If you think education is expensive, try ignorance." (Derek Bok)

"I will always cherish the initial misconceptions I had about you." (Unknown)

"A man is known by the company he avoids." (Unknown)

"Middle age is when you've met so many people that every new person you meet reminds you of someone else." (Ogden Nash, 1902-1971)

"Victory goes to the player who makes the next-to-the-last mistake." (Savielly Grigorievitch Tartakower, 1887-1956)

"If you aren't fired with enthusiasm, you will be fired with enthusiasm." (Vince Lombardi, 1913-1970)

"There are plenty of good five-cent cigars in the country. The trouble is they cost a quarter. What this country needs is a good five-cent nickel." (Franklin P. Adams, 1881-1960)

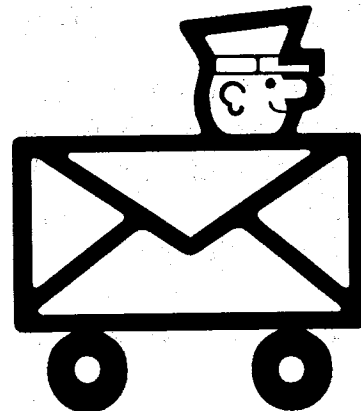
"Talk is cheap because supply exceeds demand." (Unknown)

**NOTICE:** We will welcome any materials that you submit to the Holmes Safety 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 1990 is underway – please remember that if you are participating this year, you need to mail you quarterly report to:

Mine Safety & Health Administration  
Educational Policy and Development  
Holmes Safety Bulletin  
4015 Wilson Boulevard, Room 531  
Arlington, Virginia 22203-1984

Phone: (703) 235-1400



# Holmes Safety Association

## Officers and Executive Committee

### 1990-1991

<i>Officers</i>	<i>State</i>	<i>Representing</i>
President .....	Joe Main .....	DC .....
First Vice President .....	Ron Keaton .....	WV .....
Second Vice President .....	Thomas Ward .....	PA .....
Third Vice President .....	Dick Machesky .....	PA .....
Fourth Vice President .....	Joseph LaForte .....	PA .....
Secretary-Treasurer .....	Don Farley .....	WV .....

<i>Executive Committee</i>	<i>State</i>	<i>Title</i>
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Alex Bacho .....	Fed .....	Bureau of Mines .....
William Garay .....	State .....	Pa. Dept. of Deep Mine Safety .....
Ellsworth Bengry .....	Fed .....	MSHA, Coal Mine S & H .....
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Vernon Demich, Sr. ....	Labor .....	UMWA .....
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Ford B. Ford .....	Fed .....	MS & H Review Comiss. .... DC .....
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Henderson Grigley .....	State .....	Ohio Division of Mines .... OH .....
James Adkins .....	Mgt .....	Cannelton Industries .... WV .....
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Thomas Rabbitt .....	Labor .....	UMWA .....
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Joseph Williams .....	State .....	Illinois Dept. of Mines/Minerals .... IL .....
David Hazlett .....	Ins .....	Loss control representative .... PA .....
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Harry Thompson .....	MSHA .....	MSHA, Coal Mine S & H .... PA .....



# Joseph A. Holmes Safety Association

## AWARDS FOR INDIVIDUAL WORKERS

TYPE "A" AWARDS - Miners are recognized for heroism for risking their own life to save or to attempt to save another during a sudden emergency. Awardees receive a Medal of Honor Certificate and a bronze medallion.

HOW TO APPLY FOR TYPE "A" AWARDS: Applications must be submitted within two years of the occurrence. Mine rescue teams are not ordinarily eligible for this award. The Hero Awards Committee will review and approve this award at the Annual National Meeting. For details on applying for this award, contact the local MSHA office or write to the Joseph A. Holmes Safety Association, c/o National Mine Health and Safety Academy, P.O. Box 1166, Beckley, WV 25802, Telephone 304-256-3245.

TYPE "B-1" and OTHER AWARDS - Workers who complete 10, 20, 30 & 40 years without a lost workday injury are eligible to receive certificates, decals, and pins attesting to their safety record. Clerical or office work cannot be counted toward these awards. The Association will arrange for the purchase of the pins and decals. Employers or individuals are responsible for the cost of the pins and decals.

HOW TO APPLY FOR TYPE "B-1" AND OTHER AWARDS: Applications may be submitted any time during the year. 40-year awards will be issued in June of each year, after the annual meeting. 10, 20, & 30 year awards can be approved by the National Secretary/Treasurer and issued as soon as received. An order form for the pins and decals will be returned with the award certificate and approval letter. Application forms may be obtained from the local MSHA office or by writing to the Joseph A. Holmes Safety Association.

## AWARDS FOR MINES/WORK UNITS

Type "B-2" Awards - Supervisors/Managers whose work groups or mines establish work records without a fatality or a lost time injury. The criteria are 250,000 work-hours for underground, 350,000 work hours for surface, or five years or more regardless of work-hours.

Type "C" Awards - Recognize mines or departments for work records of 4 million work-hours without a fatality or 600,000 workhours without a lost time injury. This award also recognizes significant improvement in incidence rates over a period of several years.

Special Awards - Recognize small operations (25 employees or less), or work records of 100,000 work-hours without a fatality or permanent disability, or for work records of 50,000 work hours without a lost time injury.

Application forms may be obtained by writing or calling the Joseph A. Holmes Safety Association.

December 1990

32

# Joseph A. Holmes Safety Association

## Awards Criteria--Outline

### Type "A" Awards - For Acts of Heroism

The awards are medals with Medal of Honor Certificate.

### Type "A" - For Acts of Heroic Assistance

The awards are Certificates of Honor.

### Type B-1 Awards - For Individual Workers

(40 years continuous work experience without injury that resulted in lost workdays)

The awards are Certificate of Honor, Gold Pins and Gold Decal.

### Type B-2 Awards - For Individual Officials

(For record of group working under their supervision)

The awards are Certificate of Honor.

### Type C Awards - For Safety Records

(For all segments of the mineral extractive industries, meeting adopted criteria)

The awards are Certificate of Honor.

### Other Awards - For Individual Workers

(For 10, 20, or 30 years without injury resulting in lost workdays)

The awards are 30 years - Silver Pin and Decal, 20 years - Bronze Pin and Decal, 10 years - Decal bearing insignia.

### Special Awards - For Small Operators

(Mine operators with 25 employees or less with outstanding safety records)

The awards are Certificate of Honor:

Contact: HSA Office

Department of Labor  
MSHA, Holmes Safety Association  
4800 Forbes Avenue  
Pittsburgh, PA 15213

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