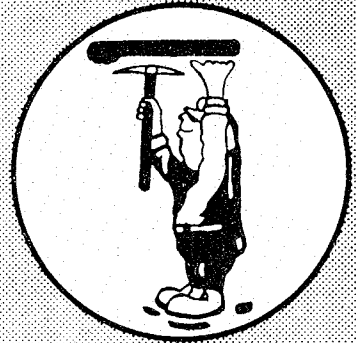


SEPTEMBER 1983



# BULLETIN



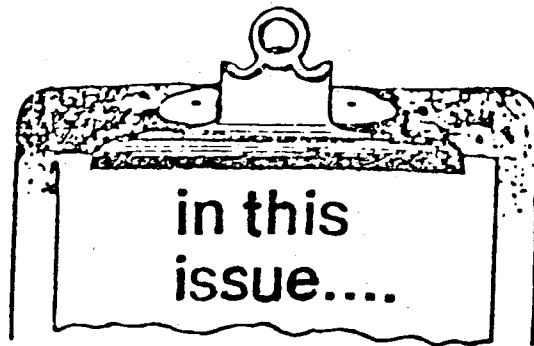
**BE ACCIDENT  
FREE IN**



**"83"**



# HOLMES SAFETY ASSOCIATION



September 1983

1. In Memoriam
2. Resolution
3. Safety Topic, "Welcome New Members"
4. Announcement, "1983 National Mine Rescue and First-Aid Contest"
5. Proclamation
6. News Release, "Holmes Safety Association Day Proclaimed"
7. Safety Topic, "Work Practice Guidelines--Storage"
8. Safety Topic, "Warning Explosion Warning"
9. Safety Topic, "Oil Storage Rooms"
10. Abstract, "Fatal Chute Accident"
11. Abstract, "Chart of Direct and Proximate Accident Causes"
12. Safety Topics, "Guard Your Health"  
"Plain Talk"
13. Safety Topic, "Analysis of Injuries Associated with Pumps  
Metal/Nonmetal Mines 1979 - 1982"
14. Safety Topic, "Mining Section--Daily Safety Procedures for  
Open Pit Shift Bosses"
15. Safety Topic, "Falls of Ground Accidents"
16. Meeting Report Form (Mine Chapters Only)

President  
THOMAS J. SHEPICH  
Arlington, VA

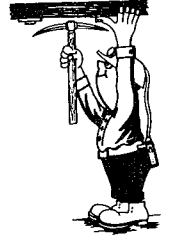


Secretary-Treasurer  
WILLIAM H. HOOVER  
Tucson, AZ



## MINE SAFETY AND HEALTH ADMINISTRATION

4800 Forbes Avenue, B185  
Pittsburgh, PA 15213  
(412) 621-4500 Ext. 650



301 W. Congress, Rm. 7K  
Tucson, AZ 85701  
(602) 629-6631

### Vice Presidents

Walter J. Vicinelly Harrisburg, PA  
Cecil Roberts Washington, DC  
David Hazlett Elderton, PA  
James Clem St. Louis, MO

### IN MEMORIAM

### Executive Committee

Raymond Ashby Madisonville, KY  
Ralph Banks Sesser, IL  
Robert E. Barrett Windber, PA  
Edwin P. Brady Clarksburg, WV  
Daniel Cronin Glenshaw, PA  
John English Arlington, VA  
George E. Fish Washington, DC  
Ford B. Ford Arlington, VA  
Norman Gonder Tucson, AZ  
Kirk Harman Mt. Hope, WV  
Doug Huber College Station, TX  
Donald Huntley Pittsburgh, PA  
Ron Keaton Morgantown, WV  
Thomas E. Kobrick Bethlehem, PA  
James M. Krese Mt. Hope, WV  
Emmett T. Lang Ebensburg, PA  
Dave Lauriski Sunnyside, UT  
Elmer B. Layne Benton, IL  
Ray Light Pittsburgh, PA  
Steve Lipe Hanná, WY  
Joe Main Washington, DC  
James McCutchan Phoenix, AZ  
John Miller Hastings, PA  
Ivan Moreton Sesser, IL  
Edward Onuscheck Indiana, PA  
Earle Rudolph Washington, PA  
James J. Shober Jr. Pottsville, PA  
John Shutack Wilkes-Barre, PA  
Ben T. Spears Evansville, IN  
John Takacs Waynesburg, PA  
Harry Thompson Indiana, PA  
Michael Trainor Pittsburgh, PA  
Harry Tuggle Pittsburgh, PA  
Harold Turner Grundy, VA  
Robert Vargo Indiana, PA  
Robert Vines Washington, DC  
Joe Williams Benton, IL

### Members-at-Large

William Eastgate Eagle Mountain, CA  
Maurice Fowler Greensboro, PA  
W. Dennis Frailey Benton, IL  
Charles E. Jones Wilkes-Barre, PA  
C. William Parisi Pittsburgh, PA

It was with deep regret that we learned of the untimely death of one our most faithful members who has served with dedication at all executive levels of the National, State, district council and chapter levels.

John O. Miller, Secretary-Treasurer of the Pennsylvania Bituminous Council, CSMH, MSHA, Hastings, Pennsylvania, July 6, 1983.

His endeavors were exerted to the utmost for the health, safety and welfare of all associated with the mining, mineral extractive, and allied industries, and his unselfish devotion and untiring efforts in promoting the activities and safety education programs of the Association will be greatly missed.

Serving as Secretary-Treasurer of the Pennsylvania Bituminous Council from 1971 to 1983, his deeds and example shall be a lasting incentive and inspiration to those who continue in his memory.

# HOLMES SAFETY ASSOCIATION

## R E S O L U T I O N

**WHEREAS:** Mr. C. William Parisi, a resident of Pittsburgh, Pennsylvania, retired from the mineral industry and serving as President of the National Council, Holmes Safety Association, and

**WHEREAS:** Mr. Parisi was an outstanding member of the executive body for many years participating in its activities and was President of the National Council at the time of retirement, and

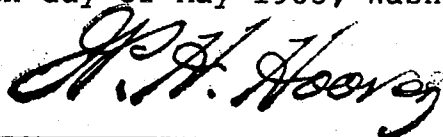
**WHEREAS:** The undersigned has been duly drafted by the executive body of the National Council, Holmes Safety Association to draft a resolution for permanent records.

**THEREFORE, BE IT RESOLVED:** That the Holmes Safety Association does hereby express its sincere gratitude for his faithful and outstanding service in furthering the objectives of the Association, and

**BE IT FURTHER RESOLVED:** That we hereby acknowledge the admirable contribution he made for 35 years in promoting the safety and well-being of persons identified with the mineral industries of the United States.

**BE IT FURTHER RESOLVED:** That a copy be forwarded to Mr. Parisi with the expression of appreciation of his efforts in behalf of the organization and from the entire membership of the Holmes Safety Association.

Dated the 24th day of May 1983, Washington, D.C.



---

William H. Hoover, Secretary



September 1983

## HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC



Remine Coal Co Inc  
Remine Coal  
Wheelwright, Kentucky

Arizona Silica Sand Co  
Arizona Silica Sand  
Houck, Arizona

Porter Coal Company  
Porter Coal  
Wise, Virginia

CASCO  
Scott Coal Mine  
Pleasant Grove, Indiana

Associates Mining Co  
Midway Pit No. 1 Coal  
Washington, Indiana

Key West Coal Co Inc  
Key West No. 1  
W Terre Haute, Indiana

Coal Incorporated  
4th Vein Mine  
Terre Haute, Indiana

Peggy-O Coal Co Inc  
Peggy-O No. 12  
Vansant, Virginia

Bowman Coal Co Inc  
Bowman Coal  
Grundy, Virginia

Tri-Della Mining Corp  
Tri-Della Mining  
Hurley, Virginia

R and D Coal Co  
R and D Coal  
Hurley, Virginia

Cousins Coal &  
Construction-P.K. Pit  
Meadowbrook, W Virginia

Indiana Bureau of Mines  
Inspection  
Washington, Indiana

Bethlehem Drilling Co  
Bethlehem Drilling  
Reedsville, W Virginia

Dixon Drilling Co  
Dixon Drilling  
Kingwood, W Virginia

Gutta Coals Corp  
Gutta Coals  
Morgantown, W Virginia

Knox County Sand Co  
Knox County Sand  
Vincennes, Indiana

Gibson County Sand Co  
Gibson County Sand  
Owensville, Indiana

Solar Sources Inc  
Solar Sources  
Petersburg, Indiana

Mt State Bit Service Inc  
Supplies/Blasting Operations  
Morgantown, W Virginia

Bull Energy Inc  
BE-1 Surface  
Prestonburg, Kentucky

Dixie Energy Corp  
Dixie Energy  
Big Stone Gap, Virginia

Lee Man Mining  
Lee Man No. 2  
Big Stone Gap, Virginia

Jerold & Jeffrey Coal Co  
Jerold & Jeffrey Coal  
Steele, Kentucky

Wampum Drilling &  
Hardware Company  
New Galilee, Pennsylvania

Howard Farley Coal Co Inc  
Howard Farley Coal  
Chapmanville, W Virginia

Lee Man Mining  
Lee Man No. 1  
Big Stone Gap, Virginia

Hardy Turquoise  
Miami Operations  
Apache Junction, Arizona

Cabin Creek Medical Center  
Black Lung Progress  
Dawes, W Virginia

National Mines Corp  
Stinson  
Wayland, Kentucky

American Mine Services Inc  
A.M.S. Sooner-Gold  
Humboldt, Arizona

Energy Supply Inc  
Energy Supply  
Dale, Indiana

Punk Coal Corp  
Punk No. 1  
Vansant, Virginia

Rookie Coal Co Inc  
No. 1  
Stacy, Virginia

Double L Coal Corp  
Double L Coal No. 1  
Grundy, Virginia

Triple G Coal Corp  
Triple G Coal  
Grundy, Virginia

Southern Coal and  
Trucking  
Beckley, W Virginia

Kingwood Trucking Co Inc  
Trucking  
Kingwood, W Virginia

Tug Valley Coal Processing  
Tug Valley  
Naugatuck, W Virginia

Magic Mountain Mining Co  
Magic Mountain-Tufa Rock  
Kirkland, Arizona

Grassy Creek Energies  
No. 1  
Elkhorn City, Kentucky

4-D Coal Co Inc  
No. 1  
Martin, Kentucky

Mid America Terminal  
Mid America  
Owensboro, Kentucky

# **1983 NATIONAL MINE RESCUE & FIRST-AID CONTEST**

**Will be held at:**

**KENTUCKY FAIR & EXPOSITION CENTER**

**Louisville, Kentucky**

**on**

**SEPTEMBER 22-23, 1983**



**As in the past, the Executive Inn (East) is the National Contest Headquarters.**

**The Executive Inn is located approximately one mile from Staniford Field (Louisville Airport) and has limousine service available.**

PROCLAMATION

WHEREAS, on August 11, 1983, the Second Annual Holmes Safety Association meeting will be held in Laramie, Wyoming; and

WHEREAS, the topic of this meeting is western resources and what the western states and industry are doing for the economy; and

WHEREAS, the national second annual Holmes Safety Association is jointly sponsored by Carbon County Coal Company and the United States Department of Labor, who share equally the continuing efforts to improve safety and health throughout the mining industry; and

WHEREAS, the sole purpose of the Western Holmes Safety Association, a non-profit organization, is to promote health and safety throughout the mineral extractive industries;

NOW, THEREFORE, I, ED HERSCHLER, Governor of the State of Wyoming, do hereby proclaim August 11, 1983, as

HOLMES SAFETY ASSOCIATION DAY

in Wyoming, and urge appropriate recognition of this observance.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Wyoming to be affixed this twenty-second day of July, 1983.

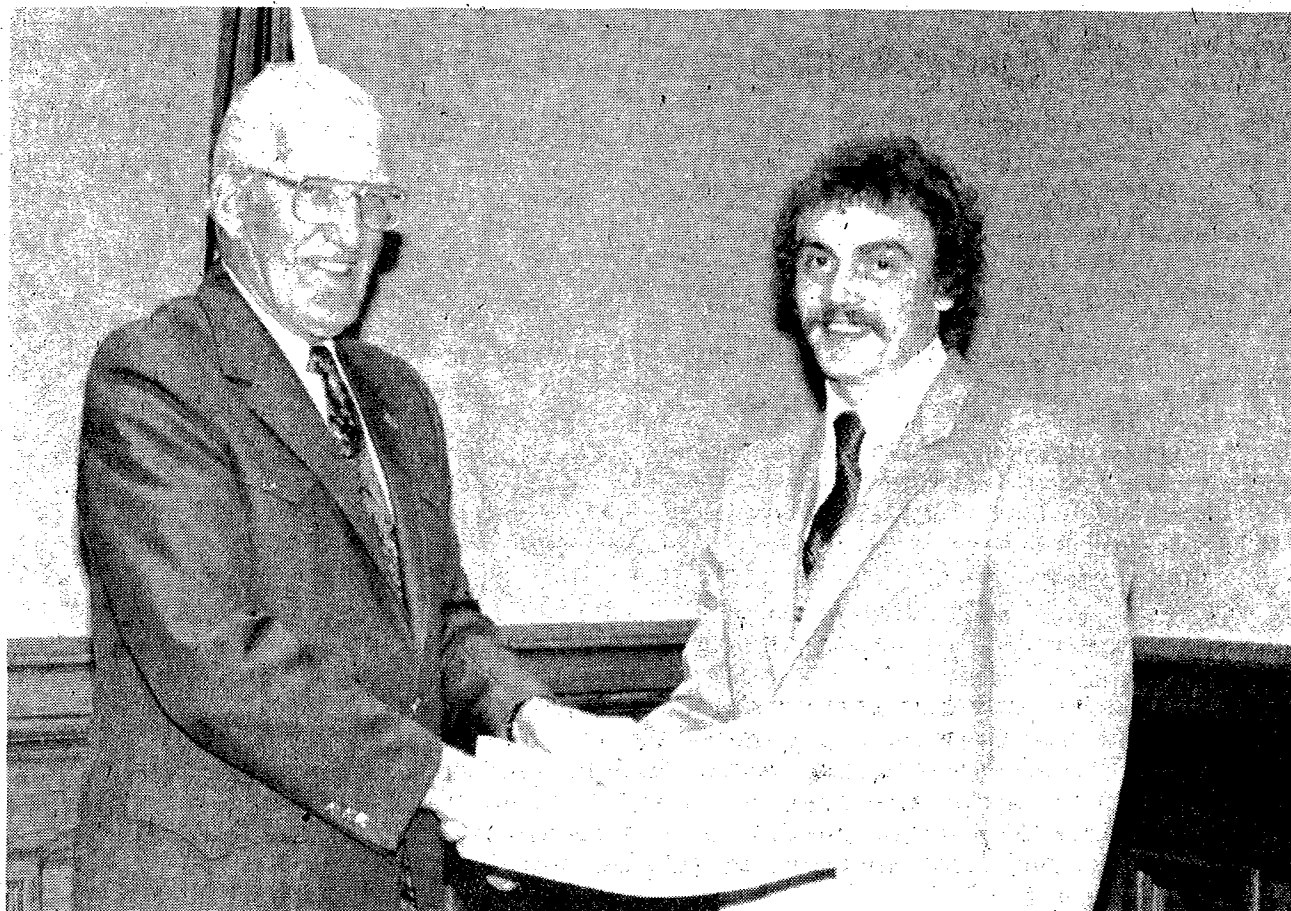
  
Governor



ATTEST:

  
Secretary of State

## H.S.A. DAY PROCLAIMED



**PROCLAMATION GIVEN to Steve K. Lipe, executive committee member of the Holmes Safety Association, right, from Wyoming Governor Ed Herschler. The proclamation by the governor makes Aug. 11, 1983 Holmes Safety Appreciation**

**Day. The second annual Holmes Safety Association meeting will be held at the Laramie Country Club Thursday. The purpose of the association is to promote health and safety in mining industries.**

The successful second annual Holmes Safety Association meeting was held in Laramie, Wyoming on August 11, 1983. The topic of this meeting was western resources and what the western States and industry are doing for the economy. Guest speakers included Mr. Don Nelson, Assistant to Governor Ed Herschler of Wyoming; Mr. John Ward, Assistant Director, Colorado Department of Mines; Mr. Timp Reynolds, Director, Utah Department of Energy; Mr. Joseph Lamonica, Administrator, Coal Mine Safety and Health, MSHA, Arlington, Virginia; Mr. William Bazo, Subdistrict Manager, Coal Mine Safety and Health, MSHA, Denver, Colorado; Mr. John English, Director of Educational Policy and Development, MSHA, Arlington, Virginia; and Mr. David Johnson, President, Wyoming Banks, Cheyenne, Wyoming. Mr. William H. Hoover, National Secretary, Holmes Safety Association, Tucson, Arizona, officiated as Master of Ceremonies.





September 1983



HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

## Work Practice Guidelines — STORAGE

A. STORAGE ENCLOSURES. Sodium, calcium and potassium cyanide shall be stored in a ventilated enclosure in which the material will be kept dry. The enclosure or storage area shall be posted with appropriate signs stating the contents and necessary safety precautions. The enclosure shall be secured to prevent entry by unauthorized persons.

APPLICABLE STANDARDS: 30 CFR 55, 56, 57.16-3; .16-4;  
.20-11

EXPLANATION: The enclosure must be ventilated to ensure that any hydrogen cyanide or acetylene gas which may be liberated if the cyanide becomes wet cannot be trapped inside. Care must be taken to keep cyanide salts dry, as the material is hygroscopic (absorbs moisture). Keeping the salts dry prevents caking and the need for mechanical crushing of the cyanide, which can generate respirable dust.

The storage requirement basically applies to the smaller, 200-pound containers. Cyanide salts are also shipped in returnable bins weighing about 3,500 pounds, but these bins are weather-tight and can be stored in an unroofed enclosure. For the smaller containers, any type of enclosure qualifies as a storage facility as long as it is ventilated and weather-tight.

B. ENCLOSURE FLOORS. If the storage enclosure has floor drainage for the cleanup of minor spills, the drainage shall be connected to the cyanide circuit. The storage area shall be floored in a manner that permits vacuuming and sweeping of major spills.

APPLICABLE STANDARDS: 30 CFR 55, 56, 57.20-3

EXPLANATION: The toxicity of cyanide requires that the cyanide storage area be kept clean through good housekeeping in order to minimize exposures. Vacuuming is the preferred method for dry cleanup, as minimal amounts of dust are generated in this process. Water should be used only after the surface has been thoroughly vacuumed or swept.

C. SEPARATE STORAGE. Sodium, potassium and calcium cyanide containers shall not be stored where they can be exposed to acid vapors, acid salts or acids liberated by spillage or leakage. The containers shall not be stored with or near nitrates, peroxides or chlorates.

APPLICABLE STANDARDS: 30 CFR 55, 56, 57.16-3

EXPLANATION: Contact of acid and cyanide salts will liberate hydrogen cyanide gas. The mixture of cyanides with strong oxidants such as nitrates, peroxides or chlorates can cause formation of toxic, dangerous or highly irritating gases, fire and/or explosion.

For these reasons, acids and oxidants should not be stored in the same enclosure with cyanide. If the cyanide storage area and other work areas are contained in one building, the acid storage area should be physically separated from the cyanide area. Blasting agents, mill reagents or laboratory chemicals may include nitrates, peroxides and chlorates and should not be stored with or near cyanide.

D. STORAGE CONTAINERS. Sodium, potassium and calcium cyanide shall be kept in the original shipping containers until used. When small amounts are needed for laboratory or pilot mill use, the containers shall be similar in nature to the original shipping containers and be plainly labeled. These small containers shall be stored separately from other chemicals.

APPLICABLE STANDARDS: 30 CFR 55, 56, 57.16-3; .16-4

EXPLANATION: Although it may be necessary to keep small amounts of cyanide in laboratories and pilot mills, there are few reasons for removing cyanide from the original shipping container before it is used. If the standard drums are too bulky for laboratory storage, a smaller container such as a water-tight, labeled metal can may be used.

"Separate storage" means at least 5 feet apart on the horizontal and preferably in a separate storage area, locker or room.



September 1983



## HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

# Warning EXPLOSION Warning

We are rapidly approaching a particularly hazardous season of the year. Almost every major explosion that has occurred in a bituminous coal mine has been in the late fall, winter, or early spring months. No one seems to have clear-cut, logical answers on why coal mine explosions occur much more frequently during these particular months.

Of course, everyone who works in coal mines knows that we are now in the "drying out" season for our mines. In the spring and summer months, the outside air is about the same or of a higher temperature than that of our mine; therefore, the outside air during these months usually contains large amounts of moisture. As the warm air passes through the mine, it is cooled and loses moisture, which is deposited on the mine surfaces, and we have a situation commonly known as "sweating."

However, in the late fall, winter and early spring seasons, cool air enters the mine and is warmed as it travels through the underground workings. The changing of the air from cold to warm causes it to "pick up" or gather moisture as it passes through the mine. The absorbing of the moisture by the warmed air as it travels through the mine causes the mine to "dry out."

Although we all agree that it is better to work in a dry area than a wet one, I think we also know that dry areas create greater explosion hazards than wet areas unless precautions are taken. Areas that are too wet to require rock-dusting during summer months often become bone dry during the winter months and require rock dusting. Often such rock dust had not been applied in the wet areas. Dust that was too wet to enter into an explosion during the summer season becomes bone dry, is easy to place in suspension and thus enters strongly into an explosion. Drying out of our mine surfaces during winter months, therefore, requires that we be very thorough in rock dusting all parts of the mine. Because of the drying out of a mine during the winter season, we know exactly why some explosions spread as rapidly and as far as they do. Dry dust enters into the explosion easier and permits it to spread more rapidly; however, no one has a good, logical reason for why methane appears to accumulate more easily and in greater quantities during the winter months than in the summer months. With or without logical reasons, methane does seem to be liberated more freely and accumulate in larger quantities more frequently during the winter months.

Investigators of the widespread explosions that have occurred in bituminous coal mines have found that the disasters resulted from the accumulation of large quantities of methane. They have found further that the gas was ignited by electrical equipment not maintained in permissible condition and that the explosion spread into other parts of the mine because coal dust entered into the explosion. Investigation of these explosions has shown further that the gas accumulated because of a ventilation interruption and the gas was not detected even in the face areas. Now that we are in the mine-explosion season, it is absolutely necessary that we do all things that we know must be done to prevent such disasters. This means that we must at all times have adequate volumes of air at the working faces. Our gas testing must be thorough, complete and regular. Areas that are difficult to keep reasonably free of coal dust and adequately rock dusted are the areas from the loading points to the working face and these areas need special attention during the winter season.

Let's all resolve to make sure that we do not short circuit the air by hanging or tying up a check curtain or a line curtain. Let's keep our permanent stoppings up. Let's make all of our gas tests thoroughly and regularly. Let's keep our electrical face equipment in as good condition as possible and let's try to eliminate dust accumulations and maintain our rock dusting to within reasonable distances of the faces. Let's not be responsible, even indirectly, for an injury, a death, or an explosion caused by a gas ignition.

## **SEASONAL CHANGES**

## **IN COAL MINES CAN**

## **TRIGGER ACCIDENTS**

# **SAFETY TIPS**



September 1983



## HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

# OIL STORAGE ROOMS

Today's message concerns oil-storage rooms and some of the things we need to do to keep them clean and free of possible fire hazards.

Quite often, due to various reasons, we do not give enough attention to the maintenance of the oil house but it's just as important to keep a clean oil house as it is to keep our preparation plant and shops clean.

Every person who uses the oil house is responsible for its condition since an individual is usually not assigned to care for it on a full-time basis.

Naturally, there will be some spillage, but you must make an extra effort to keep this spillage to a minimum. Let us review some of the basic rules for maintaining the oil house in a safe condition as well as agreeable appearance.

The greatest amount of spillage is caused by the improper filling of oil cans. This can be caused by opening the valve or spout before the oil can is properly positioned or the oil can is allowed to overflow.

Still another reason for spillage is removing the oil can before the valve is completely closed. Spillage of oil is not only expensive and adds to our cost of production but it also increases injury potential due to poor footing and is a fire hazard.

Everyone should make a special effort to reduce oil spillage by positioning the oil cans properly, by not overfilling the cans and by making certain the valve is closed before removing the can.

Still another feature we can use to reduce oil spillage is to empty the drip pans beneath the drum spouts at frequent intervals. This action will minimize the oil that will cling to the bottom and exterior of the cans when they are placed in the pans prior to refilling.

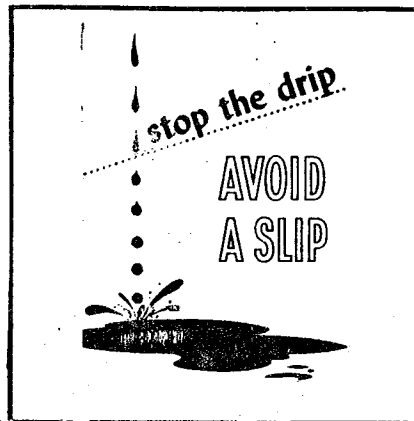
Naturally, we are not saying that the floors in our oil house must be kept as clean as the floors in your home; but, with a little extra effort on everyone's part, they can be maintained in a safe and acceptable condition so that we can walk in our oil houses without the danger of slipping and falling.

-MORE-

The sand that is spread on the floors to absorb the excess oil will also need to be removed and replaced at periodic intervals.

Fire and explosion hazards are always present where oil is stored and any lighting in the building will need to be the vapor-proof type with switches located on the outside of the building, unless they are explosion-proof.

In the event the protective glass of the fixture is damaged, there is a possibility that the light bulb might be accidentally broken and the oil vapors might be ignited. The flash point of oil is high enough to be safe under normal use and conditions but we must recognize the potential fire hazards and take certain precautions.



**CONSIDERATE**

The considerate employee works at safety for him or herself and his/her family and the safety of co-workers as well. The considerate employee discusses potential hazards with the supervisor regarding possible job hazards.

\*\*\*\*\*

Circumstances may sometimes be beyond your control but your attitude and your conduct are always within your control.

**MAKE 1983 YOUR SAFEST YEAR!**

# ABSTRACT FROM FATAL ACCIDENT

September 1983

HOLMES SAFETY ASSOCIATION  
MONTHLY SAFETY TOPIC



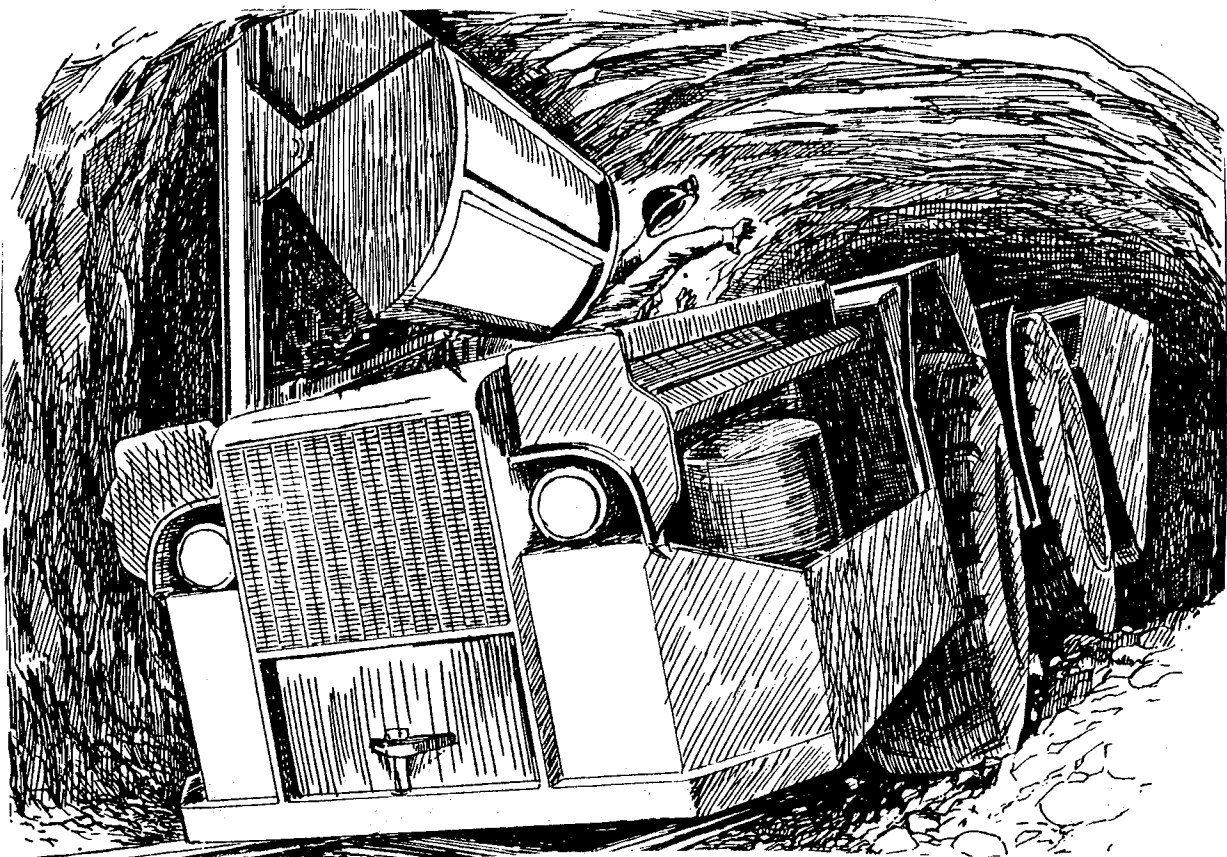
## FATAL CHUTE ACCIDENT

Description of Accident: A loader operator, age 24 with 6 years mining experience at this operation, was fatally injured when his chest was crushed between a protruding ore chute and the loader he was operating.

Approximately 30 inches of spilled material on the side opposite the chute caused the loader, as it moved forward, to tilt enough to position the victim in line with the chute lip.

Recommendations: Water, debris or spilled material which create hazards to moving equipment shall be removed. 57.9-53 MANDATORY

Warning devices or conspicuous markings shall be installed where chute lips, ventilation doors and obstructions create a hazard to persons on equipment. 57.9-104 MANDATORY



# CHART OF DIRECT AND PROXIMATE ACCIDENT CAUSES

## UNSAFE ACTS OF PERSONS

## UNSAFE MECHANICAL OR PHYSICAL CONDITIONS

- |  |  |
|--|--|
| 1. Operating without clearance, failure to secure or warn    | 1. Inadequately guarded, guards of improper height, strength, mesh   |
| 2. Operating or working at unsafe speed                      | 2. Unguarded, absence of required guards                             |
| 3. Making safety devices inoperative                         | 3. Defective, rough, sharp, slippery, decayed, cracked               |
| 4. Using unsafe equipment or equipment unsafely              | 4. Unsafely designed machines, tools                                 |
| 5. Unsafe loading, placing, mixing, combining                | 5. Unsafely arranged, poor house-keeping, congestion, blocked exits  |
| 6. Taking unsafe position or posture                         | 6. Inadequately lighted, sources of glare                            |
| 7. Working on moving or dangerous equipment                  | 7. Inadequately ventilated, impure air source                        |
| 8. Distracting, teasing, startling                           | 8. Unsafely clothed, no goggles, gloves or masks, wearing high heels |
| 9. Failure to use safe attire or personal protective devices | 9. Unsafe processes, mechanical, chemical, electrical, nuclear       |



# HOLMES SAFETY ASSOCIATION

## GUARD YOUR HEALTH

Good health is just about the most precious thing a person can own. Strength of body, clearness of eye, quickness of motion--these are the things we all want.

Sometimes we take these things for granted. Maybe we haven't been sick much in our lives. So we think that health is something that is going to be with us always.

Health is made up of a lot of things: Good rest, good eating habits, common sense, moderate exercise and protection against infectious diseases. All these contribute greatly to good health.

But all the care we take to maintain good health and all the skill of the doctors in healing us when we are sick can be meaningless if we let accidents destroy in a second the fruits of a lifetime of good, healthful living. A set of strong muscles isn't much protection if you step out in front of a taxicab or truck.

We can't be so healthy that we are protected against infection if we let even a small cut go without getting first aid.

Every time we wear safety equipment or follow safety practices that are laid down in the shop, we keep ourselves on the road to health. Take good care of yourself, keep healthy, keep happy and don't let an unnecessary accident knock you out of all the good things of healthy living.

## PLAIN TALK

Many times an injury can be directly traced to the failure on the part of supervisory personnel to properly train a new or transferred employee. No matter how intelligent employees may be, they won't know the safety precautions on a new job unless someone tells them.

Sometimes the teaching job is left to a co-worker rather than the supervisor. Perhaps the old employee does not know as much as the supervisor and may even be an unsafe worker.

The supervisor should exercise control over the indoctrination of the new employee. Give the new worker a chance to learn efficiency and safety.



September 1983



## HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

### ANALYSIS OF INJURIES ASSOCIATED WITH PUMPS METAL/NONMETAL MINES 1979 - 1982

There were 6 fatal and 593 non-fatal injuries related to pumps at metal/nonmetal mines reported to HSAC between the years 1979 and 1982. Most of the injuries attributed to pumps occurred while performing maintenance and repair (45.2 percent), lifting or moving pumps (33.8 percent), or working on an operating pump (13.0 percent).

Data for this study were obtained from the accident reports on file at the Health and Safety Analysis Center, Denver, Colorado.

Data in Table 1 illustrates the factors found to be most prevalent in the reported injuries while working with pumps. Most of the injuries, (45.2 percent) occurred during maintenance and repair. The most common hazards included dropping of parts on the employee, being struck by tools and hand injuries while aligning the pump head to the housing. Almost 10 percent of these injuries were caused by poor footing such as slick floors, working in water, and unstable ground at pump sites.

Maintenance activities accounted for the six fatalities associated with pumps and involved:

1. A loose connection between a fuse and a fuse holder that caused a ground fault.
2. Attempting to make a connection to an energized 440-volt circuit.
3. A poorly constructed splice which exposed an energized phase conductor.
4. An apparent electrical defect which caused the frame of the pump to become energized.
5. Two victims who were asphyxiated while working on a gasoline powered water pump in a 3x6 foot mine shaft.

The injuries that occurred while lifting or moving pumps, (36.8 percent) were primarily caused by improper lifting techniques or poor footing. These injuries generally occurred at strip or open pit sites when pumps were being moved to a different location. A small percentage (3.0 percent) of these injuries occurred when the pumps were being moved with the aid of hoists or forklifts and the personnel placed themselves in an unsafe location underneath the pump or between the suspended pump and a fixed object. Thirteen percent

of the injuries occurred while working around the pumps. The primary hazards included parts flying from broken drive shafts, exploding pump housings, falls or strains due to insufficient work space and handling a hot pump which has lost its prime due to plugged inlet screens.

Table 1. - Pump Injuries  
Metal/Nonmetal by Cause  
1979 - 1982

<u>Cause</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>Percent</u>
<u>Maintenance or Repair</u>					
Struck or caught by part during repair	12	16	38	14	13.3
Fall due to poor footing	11	29	16	3	9.8
Equipment not blocked and fell	20	13	4	2	6.5
Sudden pressure release from failure to drain pump	1	6	7	6	3.4
Shock from failure to disconnect and lock out electrical system	11	14	2	2	4.9
Electrical short	2(2) <sup>1/</sup>	9(1)	3(1)	3	2.8
All others	1	14(2)	8	4	4.5
Subtotal	58	101	78	34	45.2
<u>Lifting or Moving Pump</u>					
A. <u>Manually:</u>					
Improper lifting technique	26	51	39	13	21.5
Poor footing	24	13	5	3	7.5
Lack of gloves	6	4	6	2	3.0
Blocking slipped or not used	2	2	1	1	1.0
Improper tool	1	2	1	1	0.8
Subtotal	59	72	52	20	33.8
B. <u>Mechanically:</u>					
Load swung	2	1	4	2	1.5
Sling or choker slipped/broke	1	2	2	1	1.0
Hoist failed	1	1	1	0	0.5
Subtotal	4	4	7	3	3.0
<u>Operating Pump</u>					
Mechanical failure (flying parts)	2	13	10	5	5.0
Sprains & falls due to poor access	6	9	8	6	4.8
Handling overheated pump	7	6	5	1	3.2
Subtotal	15	28	23	12	13.0
All others	5	17	7	1	5.0
Total	141(2)	222(3)	167(1)	70	100.0

<sup>1/</sup>Numbers in parentheses indicate fatalities and are included in totals

This analysis indicates that there are two major activities involving pumps that lead to injuries to personnel: maintenance/repair and lifting or moving.

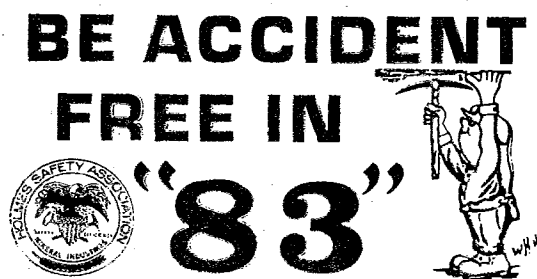
The main causes of the maintenance injuries were mechanics dropping parts of the pumps on themselves while attempting to align the pump parts. It may be possible to alleviate this type of injury by increased training in the use of lifting devices and proper alignment tools.

The potential for a fatal electrical injury is high while working on pumps due to the voltages involved and the inherently wet environment. A power center for electric pumps should be provided at a remote dry location and procedures established to remove power at the power center before pumps are moved or handled.

Almost thirty-seven percent of the total injuries occurred when employees were attempting to move a pump. During most of the accidents, the pumps were being moved manually.

The additional use of mechanical lifting equipment where space permits, and the establishment of proper lifting procedures, where space is limited should decrease this type of accident.

Most of the injuries that occurred around an operating pump were caused by mechanical failures to drive shafts or pump housings and the inability to keep screens free of debris. An identification of these potentially hazardous areas, the use of adequate trash screens and routine inspection should reduce the incidence of these injuries.

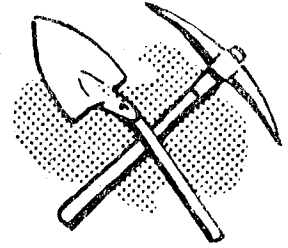


**DO YOUR PART TO KEEP THE TOLL DOWN!  
SAFETY IS EVERYBODY'S BUSINESS**

**ON THE JOB--OFF THE JOB  
TAKE SAFETY WITH YOU!**

# HOLMES SAFETY ASSOCIATION

## MINING SECTION



### DAILY SAFETY PROCEDURES FOR OPEN PIT SHIFT BOSSES

These safety procedures were developed to help open pit supervisors promote safety and efficiency to the best of their abilities. Procedures should be reproduced as small pocket size, folded cardboard booklets, or on sheets for pocket loose leaf notebooks.

1. Read note from your supervisor on the previous shift, or if possible talk to supervisor personally and discuss problems and conditions, especially pertaining to safety and efficiency.
2. As each employee in your crew reports to you at the start of the shift:
  - a. Observe physical appearance to detect possible sickness, intoxication or personal injuries not reported on the job. If necessary, take proper action.
  - b. Check to see that the clothing is proper for the job and that all personal protective equipment required is being worn including safety glasses, safety hat and hard-toed shoes or boots.
  - c. Line up the work for the following shift being sure to stress safety precautions or practices involved. Mention any unusual conditions reported to you by other supervisors.
  - d. Remember the formula for safety and efficiency:
    1. What you want done.
    2. How you want it done.
    3. Who is to do it.
    4. When it should be done.
3. Whenever you contact any member of your crew on the job, ask either one or both of these questions as they apply to the work and the working conditions:
  - a. What have you done or what are you doing to make your work safe and efficient today?
  - b. What are you doing or planning to do for safety and efficiency today? After the workers have answered your questions, make a thorough inspection, wherever practical, to see that your original orders have been or are being carried out. Look for hazards and unsafe acts or practices.

- c. Tell the employees what kind of a job you feel they are doing on safety, housekeeping, proper care of tools, machinery or equipment, use of safety devices, and proper work methods.
  - d. Ask if the equipment is working properly. Also ask if anyone has observed any unsafe conditions. If any are present, have them corrected as soon as possible.
  - e. If you are not satisfied with the work or efforts of your employees, give further instructions or orders, issue warning or reprimand slips. Remember: Immediate discharge should be used as a last resort and should be reserved for very serious safety infractions only.
4. Before leaving any piece of equipment or the work site, be sure to ask yourself this question: "Have I overlooked anything which could cause an accident or injury, or forgotten any safety reminder which could prevent an accident or breakdown?" Make a final check to be sure.
5. Be sure to take with you in your truck two pairs of 10,000 volt tested rubber gloves.
6. Check each truck, bulldozer, shovel or drill as often as possible for housekeeping and proper operation.
7. As you travel around the operation to visit the work areas you supervise, be on the alert to observe the following conditions on which you will take corrective action or report them to other supervisors:
- a. The safe and proper operating conditions on roads and in dumps, adequate wetting, improper berms, slick road conditions in wet weather.
  - b. The safe and proper operation of all vehicles and equipment.
  - c. The safe and proper procedure for blasting, including signaling and guarding.
  - d. Unsafe behavior, excessive speed or tail-gating, drivers out of trucks without hard hats or glasses, or handling of cables without protective equipment.
  - e. Improper use, care or maintenance of tools, machines, equipment or materials.
  - f. Observe if all traffic regulations are being observed and whether signs are properly placed.

- g. Report overloaded trucks and rock spillage on road.
  - h. Check to see that warming fires in winter are not too close to shacks or equipment.
8. Be sure that all new employees are being properly trained according to the standard procedures.
9. Review all rule books and safety manuals regularly so you know all the safety rules, regulations, practices and methods.
10. Remember:
- a. Treat everyone as you would wish to be treated if your positions were reversed.
  - b. If the student hasn't learned, the teacher hasn't taught.
11. Conduct a safety meeting and give a safety talk at least once a week to your entire crew.
12. Give oral safe practice reviews to each member of your crew once a month.
13. Make notes as you travel on your beat so you can discuss conditions with your following shift supervisor.
- a. List what your employees have done.
  - b. Determine what you think the following shift should do.
  - c. Be sure to note all unsafe conditions.
  - d. Determine if special tools, equipment, materials or safety devices will be needed.
  - e. Determine if machinery repairs are needed.
  - f. Be sure your report or note is as complete as the one you expect in return.
14. Make a thorough investigation of all injuries that require hospital treatment.
- a. Fill out the Supervisor's Report on Accidental Injuries as soon and as completely as possible.
  - b. Note in it if you are in doubt about any injury not being a work injury as claimed.

-MORE-

# HOLMES SAFETY ASSOCIATION

## FALLS OF GROUND ACCIDENTS

The following descriptions of two falls of ground accidents are published in the Newsletter because the causes are of frequent occurrence and therefore apt to result in accidents in other mines. The circumstances are worth discussing.

Accident No. 1. The previous shift had blasted and two miners had loaded five cars out of the heading. One partner left the face on an errand. While he was returning and about 100 feet from the breast, a slab fell from the back and killed him.

Four miners and two shift bosses had made at least ten trips in and out of the heading during a period of eight hours without observing the back.

That the back had not been inspected was evident from the fact that only part of the loose fell.

The habit of inspecting the back on the first trip into a place is a basic precaution in avoiding of ground accidents.

Accident No. 2. In this case the miner escaped with a disability of six weeks and was lucky that he was not killed. The established procedure in driving the crosscut was to slide headrails forward to provide head protection after blasting. However, the headrails were jammed against the back and could not be moved. The miners decided to proceed without the head protection. They trimmed the back and sides and began scraping.

One miner began to pick down the sides while his partner stood by the last set watching the back ready to shout a warning if loose was noticed. The partner noticed a large slab start to fall. He shouted and the miner jumped but was knocked down.

The following factors were involved in the occurrence of the accident:

The miners drilled a longer cut than was specified for the weak ground.

The miners should have drilled and blasted a few short holes to make room for the head cover.

The miners did not consult with the boss about the difficulty in sliding the headrails forward.

The miners failed to test and bar down thoroughly.

The miners did not realize that the back at the contact of ore and rock might be especially weak.

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**FALLS HURT -- BE ALERT**  
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15. Give the safety engineer any information you may have on "off-the-job" injuries to your employees.

16. Issue work reprimand slips as required for absenteeism, not enough work, quitting early, quarrelsome, if orders have been disobeyed and improper handling of tools and equipment.

17. Check to see that all your employees have reported off before leaving the operation yourself.