

MARCH 1981

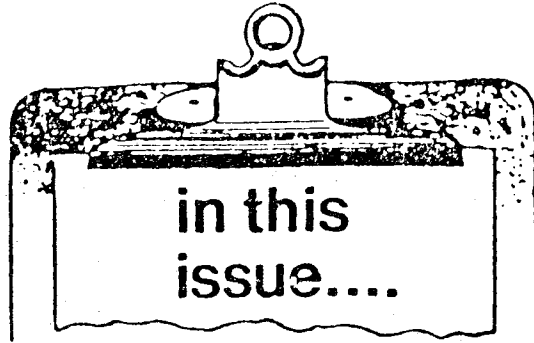


BULLETIN



United States Department of Labor
MSHA
Mine Safety and Health Administration

HOLMES SAFETY ASSOCIATION



March 1981

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WITHDRAWAL OF TOPIC: "Disposable Butane Lighters"

The article on disposable butane lighters in last months Bulletin was based on information we received indicating that two employees of a railroad had been fatally injured by accidental ignition of fluid in lighters.

Recent discussion with representatives of this railroad indicated they have no record of any accidents involving butane lighters. They were unable to discover any accidents with any other American railroads.

Since there does not appear to be any indication that butane lighters may create a potential hazard, we are withdrawing the topic and would appreciate your notifying any person you may have cautioned.



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HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

Excerpts from Code of Federal Regulations

Part 77--Surface Coal Mines and Surface Work Areas of Underground Coal Mines

Section 77.1303

Subpart N--Explosives and Blasting

Today's section will continue our discussion of the safety standards as they pertain to explosives and blasting. Because of the potential danger, all explosive materials should be handled carefully. Never drop or roughly handle packages containing explosives. Never attempt to carry more than you can safely handle and never throw packages into the truck. It takes special training and experience to handle explosives and blasting materials safely. Don't take any chances when handling explosives. Unless you have been thoroughly trained, you can be seriously injured.

Section 77.1303--Explosives, handling and use.

- (a) Persons who use or handle explosives or detonators shall be experienced persons who understand the hazards involved; trainees shall do such work only under the supervision of and in the immediate presence of experienced persons.
- (b) Blasting operations shall be under the direct control of authorized persons.
- (c) Substantial nonconductive closed containers shall be used to carry explosives, other than blasting agents to the blasting site.
- (d) Damaged or deteriorated explosives or detonators shall be destroyed in a safe manner. When it becomes necessary to destroy damaged or deteriorated explosives, consult with the manufacturer or follow the instructions of the "Institute of Makers of Explosives" pamphlet on destroying explosives.
- (e) Where electric blasting is to be performed, electric circuits to equipment in the immediate area to be blasted shall be deenergized before explosives or detonators are brought into the area; the power shall not be turned on again until after the shots are fired.
- (f) Explosives shall be kept separated from detonators until charging is started.
- (g) Areas in which charged holes are awaiting firing shall be guarded, or barricaded and posted, or flagged against unauthorized entry.

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(For use in surface coal mines)

In the event the explosive haulage vehicle has to be moved within the blasting area, precautions shall be taken to avoid driving the vehicle over or dragging hoses over firing lines, detonator wires or explosive materials. The driver, in moving the vehicle, shall obtain the assistance of a second person to guide the movement. Holes containing explosives or blasting agents, tamped and ready for firing are defined as charged holes.

During charging and firing, only the work activities associated with the explosives operation, shall be permitted in the blasting area. Blasting operations shall be under the direct control of authorized persons. Areas in which charged holes are awaiting firing shall be guarded or barricaded and posted, or flagged against unauthorized entry. Boreholes shall be stemmed immediately after charging and shots shall be fired as soon as practical after charging has been completed. Unauthorized entry of personnel into blasting areas means those persons not associated with the blasting operation.

Holes to be blasted shall be charged as near to blasting time as practical and such holes shall be blasted as soon as possible after charging has been completed. When required to postpone the firing of the blast, the provisions of Section 77.1303(g) shall be followed.

(h) Ample warning shall be given before blasts are fired. All persons shall be cleared and removed from the blasting area unless suitable blasting shelters are provided to protect persons endangered by concussion or flyrock from blasting.

(i) Lead wires and blasting lines shall not be strung across power conductors, pipelines, railroad tracks, or within 20 feet of bare powerlines. They shall be protected from sources of static or other electrical contact.

(j) For the protection of underground workers, special precautions shall be taken when blasting in close proximity to underground operations, and no blasting shall be done that would be hazardous to persons working underground.

Section 77.1303(j) governs surface drilling and blasting when there is a danger that these operations can affect the active workings of an underground coal mine. In such instances, the appropriate Orders should be issued to ensure that underground miners will be withdrawn from the endangered area before blasting is done.

(k) Holes shall not be drilled where there is danger of intersecting a charged or misfired hole.

(l) Only wooden or other nonsparking implements shall be used to punch holes in an explosive cartridge.

(m) Tamping poles shall be blunt and squared at one end and made of wood, nonsparking material, or of special plastic acceptable to the Mine Safety and Health Administration.

(n) Delay connectors for firing detonating cord shall be treated and handled with the same safety precautions as blasting caps and electric detonators.

(o) Capped primers shall be made up at the time of charging and as close to the blasting site as conditions allow.

(p) A capped primer shall be prepared so that the detonator is contained securely and is completely embedded with the explosive cartridge.

(q) No tamping shall be done directly on a capped primer.

(r) Detonating cord shall not be used if it has been kinked, bent, or otherwise handled in such a manner that the train of detonation may be interrupted.

To prevent damage to detonating cord as addressed in Section 77.1303(r), detonating cord downlines used in the charging of boreholes should be cut from the spool after the primed charge is in position.

(s) Fuse shall not be used if it has been kinked, bent sharply, or handled roughly in such a manner that the train of deflagration may be interrupted.

(t) Blasting caps shall be crimped to fuses only with implements designed for that specific purpose.

(u) When firing from 1 to 15 blast-holes with safety fuse ignited individually using hand-held lighters, the fuses shall be of such lengths to provide the minimum burning time specified in the following table for a particular size round:

<u>Number of holes in a round</u>	<u>Minimum burning time, minutes</u>
1	2
2-5	2-2/3
6-10	3-1/3
11-15	5

In no case shall any 40-second-per-foot safety fuse less than 36 inches long or any 30-second-per-foot safety fuse less than 48 inches long be used.

(v) The burning rate of the safety fuse in use at any time shall be measured, posted in conspicuous locations, and brought to the attention of all persons concerned with blasting.

(w) Electric detonators of different brands shall not be used in the same round.

(x) Adequate priming shall be employed to guard against misfires, increased toxic fumes and poor performance.

- (y) Except when being tested with a blasting galvanometer:
- (1) Electric detonators shall be kept shunted until they are being connected to the blasting line or wired into a blasting round.
 - (2) Wired rounds shall be kept shunted until they are being connected to the blasting line.
 - (3) Blasting lines shall be kept shunted until immediately before blasting.
- (z) Completely wired rounds shall be tested with a blasting galvanometer before connections are made to the blasting line.
- (aa) Permanent blasting lines shall be properly supported, insulated, and kept in good repair.
- (bb) At least a 5-foot airgap shall be provided between the blasting circuit and the power circuit.
- (cc) When instantaneous blasting is performed, the double-trunkline or loop system shall be used in detonating cord blasting.
- (dd) When instantaneous blasting is performed, trunklines, in a multiple-row blasts, shall make one or more complete loops, with crossties between loops at intervals of not over 200 feet.
- (ee) All detonating cord knots shall be tight and all connections shall be kept at right angles to the trunklines.
- (ff) Power sources shall be suitable for the number of electrical detonators to be fired and for the type of circuits used.
- (gg) Electric circuits from the blasting switches to the blast area shall not be grounded.
- (hh) Safety switches and blasting switches shall be labeled, encased in boxes, and arranged so that the covers of the boxes cannot be closed with the switches in the through-circuit or firing position.
- (ii) Blasting switches shall be locked in the open position, except when closed to fire the blast. Lead wires shall not be connected to the blasting switch until the shot is ready to be fired.
- (jj) The key or other control to an electrical firing device shall be entrusted only to the person designated to fire the round or rounds.
- (kk) If branch circuits are used when blasts are fired from power circuits, safety switches located at safe distances from the blast areas shall be provided in addition to the main blasting switch.
- (ll) Misfires shall be reported to the proper supervisor and shall be disposed of safely before any other work is performed in that blasting area.
- (mm) When safety fuse has been used, persons shall not return to misfired holes for at least 30 minutes.

(nn) When electric blasting caps have been used, persons shall not return to misfired holes for at least 15 minutes.

(oo) If explosives are suspected of burning in a hole, all persons in the endangered area shall move to a safe location and no one should return to the hole until the danger has passed, but in no case within 1 hour.

(pp) Blasted areas shall be examined for undetonated explosives after each blast and undetonated explosives found shall be disposed of safely.

(qq) Blasted areas shall not be reentered by any person after firing until such time as concentrations of smoke, dust or fumes have been reduced to safe limits.

Section 77.1303(qq) requires that before entering the blast area, personnel shall make certain that it is completely free of visible reddish brown fumes, an indication of a highly toxic concentration of nitrogen dioxide gas.

(rr) In secondary blasting, if more than one shot is to be fired at one time, blasting shall be done electrically or with detonating cord.

(ss) Unused explosives and detonators shall be moved to a safe location as soon as charging operations are completed.

(tt) When electric detonators are used, charging shall be stopped immediately when the presence of static electricity or stray currents is detected; the condition shall be remedied before charging is resumed.

(uu) When electric detonators are used, charging shall be suspended and persons withdrawn to a safe location upon the approach of an electrical storm.

MSHA recognizes that the use of ANFO, cast primers, and detonating cord provides the safest means of blasting available. However, it should be remembered that detonating cord and cast primers contain explosives and are designed to explode, consequently, it should be used with respect and common sense afforded an explosive and it must be kept in mind that every explosive can be detonated under certain critical conditions.

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HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

Fall-of-Material Accident

General Information: A skip tender was fatally injured when the material he was pulling from a shaft pocket broke loose and suffocated him. He had 32 years mining experience.

Access to the mine, an underground lead-silver mine, is provided through an adit drift to the No. 1 and No. 2 shafts. The No. 1 shaft is used primarily for ventilation and the No. 2 shaft is used as the primary access route.

Description of Accident: The victim reported for his regular shift as shaft repairer. He and his partner were temporarily assigned as skip tenders while the regular crew was on vacation. Both were familiar with skip tending procedures and had performed the duties in the past.

After removing the trailing cage, the two men proceeded to a pocket to pull muck. The victim was working the moon gate which controlled the flow of muck from the pocket to the chute where the muck skips are loaded, locally called the "cracker box". His partner was operating the main gate that filled the skips. The two areas were separated by a solid floor. Access was provided by a manway.

The shift proceeded without incident until there was a sudden inundation of wet fine muck and slime from the pocket, as the men were preparing to load the fourth skip load. The wet material burst through the check boards and over the moon gate into the area where the victim was working. His partner heard the victim yell and saw a heavy volume of muck run down the manway that connected the two areas, and into the sinking compartment of the shaft. When the flow subsided, the victim's partner immediately climbed the two sets that separated the men. He found the victim lying on his side across the manway. He checked to make sure that his partner's face was clear of muck, but was unable to move him.

The partner took a skip to another level station to get help. He returned with the shift boss, however, both could still not free the victim. The shift boss called the shaft crew and the victim was finally freed. He was transported to the hospital, but was pronounced dead.

Cause of the Accident: The direct cause of the accident was the sudden inundation of wet muck into the "cracker box". Contributing factors were:

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(For use in underground metal and nonmetal mining operations)

1. The limiting confines of the "cracker box" allowed no rapid means of escape.
2. The wet muck in the pocket was pulled too fast to let the water drain through.
3. The pocket was not checked to see if the muck was moving at a steady rate to insure that the material was not hung up.
4. The blend of slimes, fine muck and coarse muck was not at a ratio to bind the material to keep it from running.

Recommendations: Every shaft pocket where wet muck is transported and loaded should have the gate controls located above the pocket gates so that if an unplanned inundation of wet material occurs, the skip tender is located above the gates and out of danger.

Management should insure that skip tenders pull wet muck slowly enough to allow water to drain through the muck so that a hang up does not occur.

Management should check pockets during the pulling of wet muck to insure that the material is moving and not hung up.

Management should insure that the blend of slimes, wet muck and coarse muck be at a ratio to keep the material from running.

Management should have people available to render immediate assistance if needed while hazardous duties are being performed.



HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

Power Shovel Safety

People may think that it would be fun to operate or work around a power shovel, probably because of the fun they or their children have had with toy shovels. A power shovel is not something to play with, you should stay alert and obey safety rules. Any large machine of this type has to be properly operated for safety. You should take these precautions to prevent accidents.

1. When you board the shovel, be sure to use the steps and hand-holds provided. Be sure you have a solid grip in case your feet should slip.
2. Pick up any loose tools, materials or equipment on the walkway to the cab.
3. Straighten up the cab. Have the helper clear up any spilled grease or oil and put dirty wiping rags in the closed metal containers.
4. See that all machinery is lubricated and that guards are in place.
5. Start the motors to see that controls and machinery are operating properly.
6. Clear the windows if they are dirty.
7. Note any needed repairs or adjustments, but don't undertake them unless motors are stopped and the power has been locked out.
8. Be sure that fire extinguishers are in place and charged.
9. The helper should never climb on top of the cab nor on the mast when the equipment is in operation.
10. You have a responsibility for the safety of yourself and your helper and all other employees in the area--bulldozer operators, spotters, truck drivers, supervisors and others.
11. Be careful when loading against high banks. Keep the bank trimmed and don't expose the shovel to falling boulders.
12. Wear respirators where dusty conditions exist.
13. Don't move the shovel until you have checked to see that everyone is in the clear and that your helper or some other employee is guarding the power cable from damage. Be sure to give a warning on the horn before moving the shovel.
14. Warn employees who are working or standing too close to the shovel by sounding your horn.

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15. Don't try to load rocks larger than the bucket.
16. Avoid overloading trucks. Put larger boulders where they won't roll off while being transported.
17. Never leave the shovel unless the power is shut off, the bucket is resting on the ground, the controls are in neutral, and the brakes are set.
18. Don't allow persons to board or leave the shovel without telling you. Be sure the shovel is not in motion when they do so.
19. Report unsafe conditions and needed repairs or adjustments.
20. Avoid striking trucks or other equipment with the shovel or bucket.
21. Insist on a good job of housekeeping by your helper.
22. Never handle power cables with your bare hands; use special rubber gloves or tongs.

Supervisor: Add other special safety precautions used in your own operations.

Remember, your shovels are valuable pieces of machinery. Although they are designed to work efficiently and safely, it takes your skill and experience to produce these results.



HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

Excerpts from Code of Federal Regulations

Subchapter N--Metal and Nonmetal Mine Safety

Part 55.8--Rotary Jet Piercing

The following standards are mandatory federal standards relative to open-pit metal and nonmetal mines. The purpose of the standards is for the protection of health and safety and the prevention of accidents. Any violation of these standards will subject the mine operator to an order or notice of violation as required by Section 8 of the Act.

- 55.8-1 Mandatory. Jet piercing drills shall be provided with:
- (a) A system to pressurize the equipment operator's cab, when a cab is provided;
 - (b) A protective cover over the oxygen flow indicator.
- 55.8-2 Mandatory. Safety chains or other suitable locking devices shall be provided across connections to and between high pressure oxygen hose lines of 1-inch inside diameter or larger.
- 55.8-3 Mandatory. A suitable means of protection shall be provided for the employee when lighting the burner.
- 55.8-4 Mandatory. When rotary jet piercing equipment requires refueling at locations other than fueling stations, a system for fueling without spillage shall be provided.
- 55.8-5 Mandatory. Persons shall not smoke and open flames shall not be used in the vicinity of the oxygen storage and supply lines. Signs warning against smoking and open flames shall be posted in these areas.
- 55.8-6 Mandatory. The oxygen intake coupling on jet piercing drills shall be constructed so that only the oxygen hose can be coupled to it.
- 55.8-7 Mandatory. The combustion chamber of a jet drill stem which has been sitting unoperated in a drill hole shall be flushed with a suitable solvent after the stem is pulled up.

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(For use in surface metal and nonmetal mines)

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Down With Accidents

Luck favors some workers who have gone uninjured, not because of their own efforts in accident prevention, but more so because of safety action taken by others.

Some may share the honors of no-accident, no-injury days, weeks, and months at their plant, yet they may have contributed very little to the record other than surviving.

How many times have you prevented an accident on the highway at your unit because of quick thinking and quick action? Compensating for the shortcomings of others is expected of a good driver. The same thing holds true on the job. And when it comes right down to it, this sort of action is our responsibility.

Leaving unsafe conditions for others to report or correct is a mark of the worker who often falls into "sleeper" category, at least until one of the unsafe conditions catches up with that employee.

Committing unsafe acts and getting away with them not only breeds danger for the violators, but also involves the safety of others, both on the job and off. This individual isn't hard to spot in the crew or on the road. Stand up and be counted as one who serves in safety.

We Believe...

...that everyone bears the unalterable responsibility for keeping out of harm's way. This they owe to themselves, their families, their coworkers, and their jobs.

...that no one lives or works entirely alone. They are involved with everyone, touched by their accomplishments, marked by their failures. If they fail the person beside them, they fail themselves, and will share the burden of that loss. The true horror of an accident is the realization that a person has failed themselves--and that their coworkers have failed them.

...that accidents are conceived in improper attitudes, and born in moments of action without thought. They will cease to be only when the proper attitude is strong enough to precede the act--when the right attitude creates the awareness that controls the act.

...that the prevention of accidents is an objective which crosses all levels of rank, organization and procedure.

...that freedom from harm is not a privilege but a goal to be achieved and perpetuated day by day.

--American Society of Safety Engineers

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What Have You Done Recently for Safety?

Have you:

--held safety meeting with your workers which you prepared ahead of time? Was it a good meeting that served to make your employees more safety conscious?

--contacted your workers at least once a week and discussed the hazards of their jobs? Did you review the job safety analysis on the concerned jobs to refresh your memory before making the contacts?

--prepared adequate job safety analyses by viewing the concerned jobs while being done and discussing the hazards and precautionary measures with the employees doing the job?

--observed all your workers, at least once a month, perform the various phases of their jobs to determine if they are working safely? When unsafe practices were detected, did you take immediate corrective action?

--made frequent inspections in your area of responsibility for unsafe practices and conditions? Were all observed unsafe conditions corrected as soon as possible?

--encouraged your workers to keep their work areas clean and in good order? Are you proud of the housekeeping in your area? How is the piling and storing? Any scrap lying around the area? How about grease and oil spillage?

--investigated all accidents in your area? Did you discuss causes and preventive measures with all concerned employees? If not, recurrences are likely.

--shown enthusiasm for safety and set a good example? Have you proved to your workers that you are interested in their safety and welfare? This is a must.

--made periodic inspections of tools and equipment and removed from service any found defective?

--continually impressed on your workers to be always alert for their own personal safety and have a regard at all times for the safety of their coworkers.

The prevention of injuries to your workers is a prime objective. The key to this objective lies in your willingness to plan and properly carry out our safety duties. The benefits to be derived from our safety efforts are many. However, these benefits will be equal only to the amount of effort, planning, and enthusiasm each of us is willing to put into our safety work.

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(For use in all mining operations)

March 1981



HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

Look At The Record

Holmes councils and chapters can only help to prevent accidents if we know who gets injured and how. It is interesting to know that not all roof fall accidents occur to face workers and that not all shuttle-car accidents happen to shuttle-car operators. We learn this by going through the record. Then we can look into the reasons why face workers get mixed up with shuttle cars and why shuttle-car operators get injured with roof falls.

At the end of each year, we find it good to take a look at the record to see just what we have actually been doing. It is easy for our egos to be inflated by a good safety performance record for a month or two. However, we must not lose sight of a period in the year in which we had a discouraging record.

No matter how the curve went up or down as the months passed, we tend to judge our yearly performance by where the curve ends on the last day of the last month in the year.

It is only by going through the record carefully and summarizing that we find a place to start toward improvement. Our weak spots will show when accidents increase in certain categories and we can determine where we should direct most of our efforts during the coming year.

Graphs and charts compiled from the record will prove enlightening if we study them carefully.

Every supervisory employee, every safety committee person, and every safety director should avail themselves of the opportunity to study the safety record. There is plenty of valuable material there which relates to reducing accidents.

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(For use in all mining operations)

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HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

Fatal Accidents in Mining Decline

Preliminary data for 1980 show a record low number of accidental deaths in the mining industry, according to the Labor Department's Mine Safety and Health Administration (MSHA).

Fatal accidents in coal mining dropped to 126, down 18 from the previous year. This reduction in fatalities occurred in a year when coal production reached its highest annual total in U.S. history, more than 835 million tons, according to U.S. Department of Energy estimates.

In metal and nonmetal mining, there were 102 fatal accidents in 1980, 21 fewer than the total for the year 1979. The stone and sand and gravel mining industries accounted for 56 of the fatalities, or roughly 55 percent of the total.

"We believe these reductions are the result of the cooperative efforts of labor, industry and government--both federal and state," said Robert B. Lagather, assistant secretary for mine safety and health. "This tripartite effort was strongly encouraged by the congress when it enacted the Federal Mine Safety and Health Act of 1977, and we hope that the continued cooperation of all segments of the mining community will bring about further reductions in the years to come."

The 1980 fatality figure for metal and nonmetal mining was the lowest ever reported, while the total number of deaths in coal mining was below that for all previous years excepting 1978, when a work stoppage halted coal production for 86 days.

The annual totals are compiled from the accident, injury and illness reports that mine operators are required to submit to MSHA. The data are preliminary, and final statistics available in the next few months may vary slightly from the preliminary totals.

For 1980, the leading cause of death in both coal and noncoal mining was accidents with powered haulage vehicles. A total of 33 such fatal injuries occurred last year in U.S. coal mines, with another 29 in metal and nonmetal mines.

Preliminary data are also available on all injuries, with and without lost workdays, for the federal government's 1980 fiscal year which ended last September.

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For metal and nonmetal mining, these figures also show a substantial reduction: there were 17,731 injuries in fiscal 1980, down from 20,023 in fiscal 1979. The rate of injury in fiscal 1980 was 6.56 for every 200,000 employee-hours, down from fiscal 1979's rate of 7.29.

Preliminary data on coal mining injuries show an increase, however. The 1980 fiscal year total for all coal mining injuries is 22,515, up 634 from the previous year. Coal mining's injury rate for fiscal 1980 was 10.12 for every 200,000 employee-hours, an increase of .45 over the previous fiscal year.

The record low fatality figures mark a continuing downward trend that began early this century. Accidental deaths in mines in the United States averaged over 2,500 per year before 1930, but have gradually decreased since that time. The total number of fatal injuries in coal and noncoal mines last year was 228.

MAKE SAFETY

ONE in

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HURRY...HURRY.....



HURRY!

**NATIONAL COUNCIL
NEWS BRIEF**

**ANNUAL MEETING OF THE HOLMES
SAFETY ASSN., WILL BE HELD AT
QUALITY INN/CENTRAL, 1190 COURT-
HOUSE ROAD, ARLINGTON, VA. 22201
WEDNESDAY, MAY 27, 1981, 10 a.m.**

**LODGING. FOOD. DRINKS. MEETING
ROOM ALL AT ONE LOCATION
4 BLOCKS FROM SUBWAY.**

**THE J.A.H.S.A. WILL MEET SAME
TIME AND PLACE THE NEXT DAY.**

Everyone Is Invited. For Further Information Contact
Holmes Safety Association, Four Parkway Center, Suite 102,
Pittsburgh, Pa 15220
(412) 922-0220

NATIONAL SECRETARY

HOLMES SAFETY ASSOCIATION NEWS You Can Use

**ANNOUNCEMENT AND
CALL FOR ABSTRACTS**

**II International Symposium
on Training in the Prevention of
Occupational Risks in the Mining Industry**
November 8-13, 1981
Shoreham Hotel
Washington, D.C., U.S.A.



FOR FURTHER INFORMATION CONTACT:

Mine Safety Training Symposium Headquarters
1629 K Street, N.W., Suite 700
Washington, D.C. 20006 U.S.A.
Telephone: 202/296-2573