December 1980

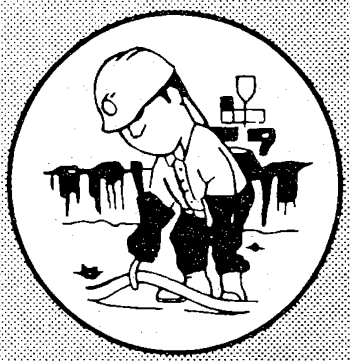
HOLMES SAFETY ASSOCIATION

PLURIBUS UNUM

SAFETY EFFICIENCY

MINERAL INDUSTRIES

BULLETIN

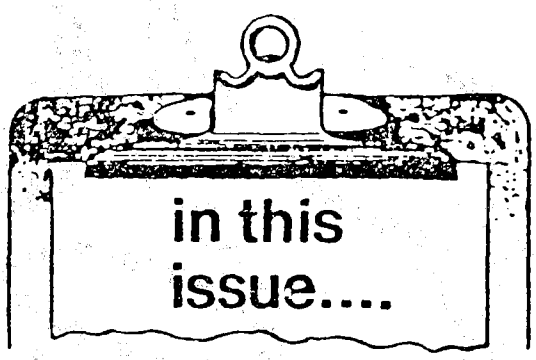


United States Department of Labor

MSHA

Mine Safety and Health Administration

HOLMES SAFETY ASSOCIATION



DECEMBER 1980

1. MERRY CHRISTMAS AND A HAPPY NEW YEAR

2. Safety Topic, "Part 77--Surface Coal Mines and Surface Work Areas of Underground Coal Mines Subpart M--Maps, Sections 77.1200-77.1202"

3. Abstract, "Fatal Machinery Accident"

4. Abstract, "Fatal Haulage Accident"

5. Safety Topic, "Part 55.6--Use"

6. Safety Topic, "Safety in Mine Haulage"

7. Safety Topic, "An Accident?"

8. Safety Topic, "One Bad Apple"

9. Safety Topic, "Shock...Nature's Killer"

10. Safety Topic, "First Aid in the Mines"

11. Meeting Report Form (chapters only)

THE LAST WORD

"The helping hand you need is often
the one at the end of your arm"

Merry Christmas

and a Happy New Year

HOLMES SAFETY ASSOCIATION

December 1980

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
Subpart M--Maps, Sections 77.1200-77.1202

Long before the first lump of coal is extracted, a mine map is prepared for use by management. Many questions must be answered before a new mine is opened. The most important of these are:

1. How many mineable seams exist on the property?
2. What geological features can be predicted?
3. Where should mining start?
4. What mining system and equipment must be used?
5. How must the mine workings be projected?

Through the methods of prospecting or exploring, many of these questions will be answered. Engineering surveys establish elevations that will determine the direction of water flow and other data necessary to make judicious decisions. Sound safety engineering principles must be used to make these decisions.

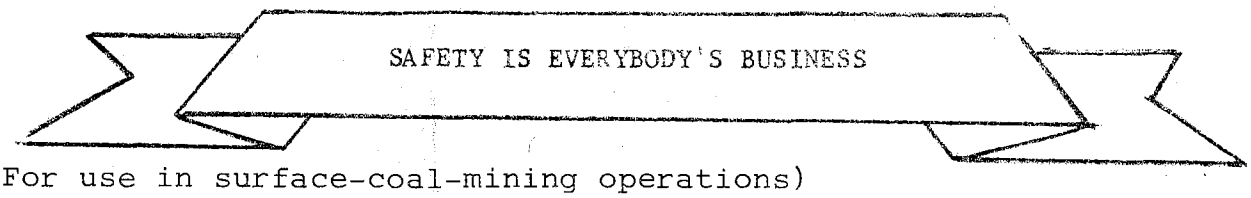
The health and safety of mine workers depends on accurate and properly interpreted mine maps. Several accidents have been attributed to mapping or survey errors. For example, an inundation of water occurred when an auger drill holed through into an abandoned mine which resulted in the flooding of the entire pit. Although no loss of life or injury occurred, there was considerable property damage.

The operator shall maintain an accurate and up-to-date map of the mine, on a scale of not less than 100 nor more than 500 feet to the inch, at or near the mine, in an area chosen by the mine operator, with a duplicate copy of file at a separate and distinct location, to minimize the danger of destruction by fire or other hazard. The map shall show:

(a) Name and address of the mine;

(b) The property or boundary lines of the active areas of the mine;

(c) Contour lines passing through whole number elevations of the coalbed being mined. The spacing of such lines shall not exceed 25-foot elevation levels, except that a broader spacing of contour



(For use in surface-coal-mining operations)

lines may be approved by the District Manager for steeply pitching coalbeds. Contour lines may be placed on overlays or tracings attached to mine maps;

(d) The general elevation of the coalbed or coalbeds being mined, and the general elevation of the surface;

(e) Either producing or abandoned oil and gas wells located on the mine property;

(f) The location and elevation of any body of water dammed or held back in any portion of the mine: Provided, however, such bodies of water may be shown on overlays or tracings attached to the mine maps;

(g) All prospect drill holes that penetrate the coalbed or coalbeds being mined on the mine property;

(h) All auger and strip mined areas of the coalbed or coalbeds being mined on the mine property together with the line of maximum depth of holes drilled during auger mining operations;

(i) All worked out and abandoned areas;

(j) The location of railroad tracks and public highways leading to the mine, and mine buildings of a permanent nature with identifying names shown;

(k) Underground mine workings underlying and within 1,000 feet of the active areas of the mine;

(l) The location and description of at least two permanent base line points, and the location and description of at least two permanent elevation bench marks used in connection with establishing or referencing mine elevation surveys; and

(m) The scale of the map.

Section 77.1201--Certification of mine maps.

Mine maps shall be made certified by an engineer or surveyor registered by the state in which the mine is located.

Section 77.1202--Availability of mine map.

The mine map maintained in accordance with the provisions of Section 77.1200 shall be available for inspection by the Secretary or an authorized representative.

ABSTRACT FROM FATAL ACCIDENT

December 1980

HOLMES SAFETY ASSOCIATION
MONTHLY SAFETY TOPIC

FATAL MACHINERY ACCIDENT

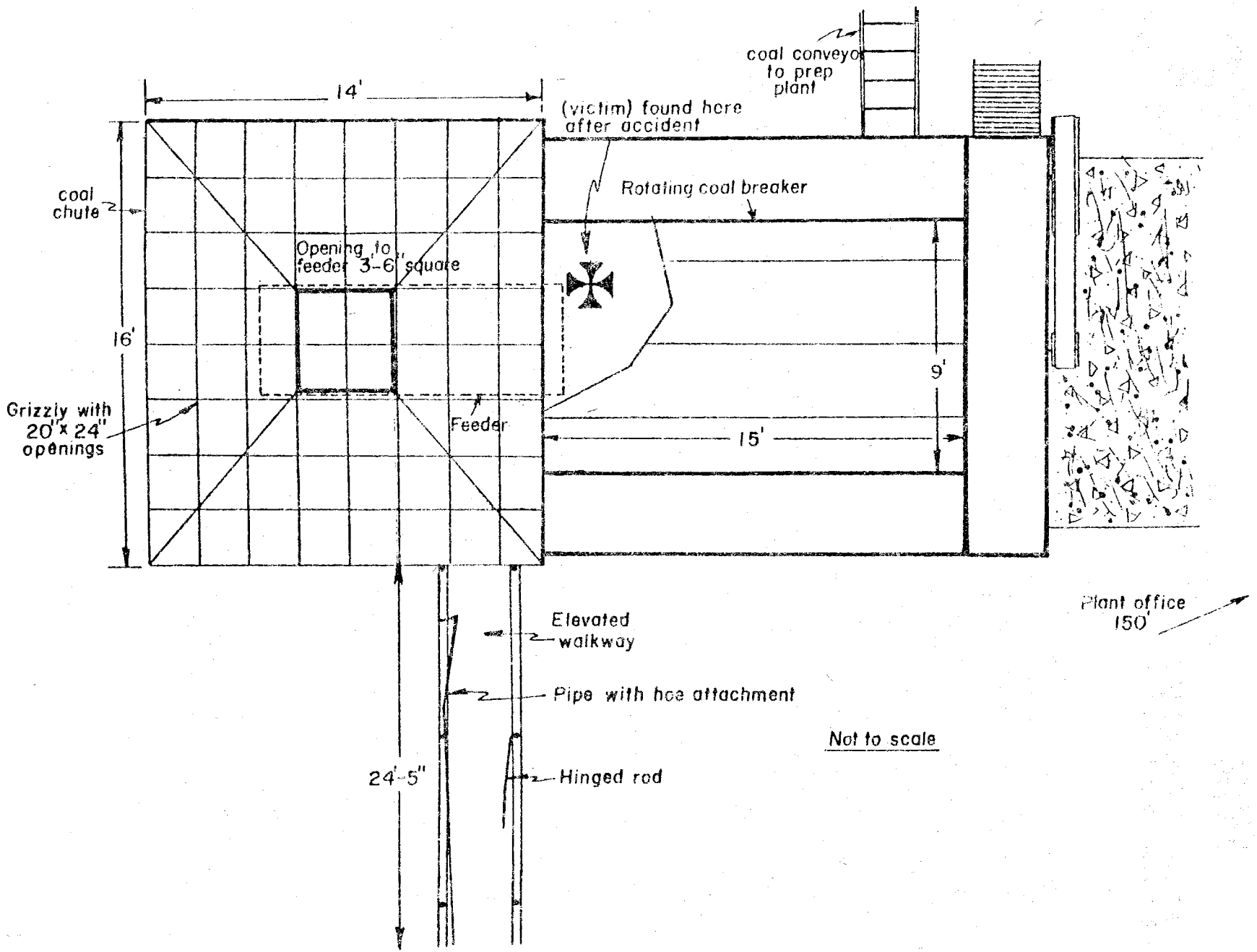
General Information: A machinery accident occurred resulting in fatal injuries to a laborer who had approximately 11 weeks mining experience, 5 days on this job site.

Description of Accident: The laborer (victim) was assigned to work at the coal chute and keep coal, which was being dumped by a dragline onto a grizzly over the coal chute from building up and freezing to the sides of the chute. Normal coal loading operations continued until the victim walked over to the dragline operator and told him that he was cold. The dragline operator told the victim to get a relief person and then go to the plant office. The victim left and the dragline operator observed him walk over to the bottom end of the elevated walkway leading to the coal chute. The dragline operator rotated the dragline left about 90 degrees, scooped up a bucket of coal, rotated the dragline back towards the coal chute and stopped short of it when he did not see the victim. Thinking that the victim had gone to obtain someone to relieve him, the dragline operator waited. At about the same time, because of the inclement weather, the foreman assigned a laborer to relieve the victim.

The dragline operator observed the relief laborer walk across the coalyard and up the walkway. The laborer signaled to the foreman who was in the plant office about 150 feet away that he did not see the victim in the area. At about the same time, the foreman saw a hard hat and shovel bouncing in the coal breaker. He notified the preparation plant operator via intercom to deenergize the power and then went to retrieve the hard hat and shovel and observed the victim lying in the breaker. He climbed in, examined him, and finding no pulse, ran to the plant office and telephoned the main office requesting an ambulance. Mouth-to-mouth resuscitation was administered but the victim was pronounced dead at the scene.

Cause of Accident: The accident occurred when the victim, while performing his normal duties of checking or attempting to loosen materials, fell into the coal chute and was subsequently drawn into a rotating coal breaker. A railing or barrier was not provided at the coal chute end of the elevated walkway to prevent him from falling into the coal chute while performing these duties (violation of Section 77.204) and he was not wearing a safety belt (violation of Section 77.1710(g)).

(For use in surface coal-mining operations)


coal conveyor to prep plant
14'
(victim) found here after accident
Rotating coal breaker
coal chute
Opening to feeder 3-6" square
16'
9'
Grizzly with 20"x 24" openings
Feeder
15'
Plant office 150'
Elevated walkway
Pipe with hoe attachment
Not to scale
24'-5"
Hinged rod

ABSTRACT FROM FATAL ACCIDENT

December 1980

HOLMES SAFETY ASSOCIATION
MONTHLY SAFETY TOPIC

FATAL HAULAGE ACCIDENT

General Information: A miner was fatally injured when the Caterpillar 988A front-end loader he was operating turned over as it went over a dropoff. He was crushed in the cab. The victim had 25 years of mining experience, with four months as a front-end-loader operator. The mine was a currently inactive underground mine that had limited surface activities. Mining operations, as such, at the operation were terminated. Except for maintenance work required to prevent mine flooding underground, all work on the property was being done on the surface.

Activities on the surface were directed in three areas. The primary activity was the salvage, reconditioning and sale of mining machinery and equipment formerly used to mine ore underground. Additionally, the production of concentrate products from stockpiled ore, and the cleaning of older stockpiled pellets at the bottom of former stockpiles were significant areas of operation.

Description of Accident: The victim had been instructed to take the Caterpillar 988A loader and pick up some pellets that had been dumped on the road. Prior to this, he had been instructed to use a bulldozer to push the pellets off the road, but this instruction was replaced with the one to retrieve the pellets with the loader.

Before the victim proceeded with the loader, he was given a short period of instruction by the general superintendent. The purpose of this instruction was to make certain that the victim understood how to properly operate the parking brake. With this instruction complete, the victim proceeded with the loader to retrieve the pellets which had been dumped by a haultruck to lighten the load.

Though there were no witnesses, it was believed events occurred in the following order. The victim left the mobile equipment parking area and proceeded via the road around the reclaim stockpiles to an intersection. Whether the victim made the sharp turn and proceeded directly up the intersecting road or continued on to the open area shaft to turn around first is not known. If he chose to push into the dumped pellets in third gear, it was likely that he made the turnaround to maintain momentum.

(For use in underground and surface metal and nonmetal mines)

There is no way to reconstruct exactly what sequence of events occurred after the pellets were picked up. The path of the loader traced a virtually straight path down the center of the road, through the intersection, down the 40-foot slope and off the dropoff. From this point, the loader went over the brink of the dropoff at about 60 degrees and came to rest on its top between the belt conveyor and the toe of the dropoff. The height of the dropoff was estimated to be 13 feet. There was evidence that the loader struck first on its left wheels and then came to rest upside down. Both left tires were blown by this impact. The position of final rest was down the line of the brink and virtually in line with the path traveled. All evidence indicated that the loader was traveling at coasting speed.

Some in the investigating group believed the engine was lugged down and stalled, and the short interval of time to coast backwards to the dropoff was spent attempting a restart. There was no evidence along the rock road that braking was ever attempted.

Cause of Accident: There were no witnesses, so that the exact cause of the accident could not be determined.

Factors contributing to the cause of the accident could be managements decision to use a front-end loader to remove pellets that had been dumped on the road rather than a bulldozer to push the pellets off the road. Even though the operator had 25 years mining experience, he had only four months on intermittent experience operating this front-end loader.

Contributing to the severity of the accident was failure of the management to provide roll over protection and seatbelts. This combination would probably have lessened the severity of the accident.

Recommendations: Heavy mobile equipment permitted by law to operate without rollover protection and seatbelts should not be used where terrain or operating circumstances increase the probability that an upset might occur.

December 1980

HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

Excerpts from Code of Federal Regulations

Subchapter N--Metal and Nonmetal Mine Safety

Part 55.6--Use

All of the standards are mandatory; violation of a standard will subject the mine operator to an order or notice of violation as required by Section 8 of the Act.

55.6-90 Mandatory. 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 person(s).

55.6-91 Mandatory. Blasting operations shall be under the direct control of authorized persons.

55.6-92 Mandatory. Damaged or deteriorated explosives and blasting agents shall be destroyed in a safe manner under the instructions of the explosives or blasting agent manufacturer or its designated agent.

55.6-93 Mandatory. Boreholes shall be cleared of obstructions before charging.

55.6-94 Mandatory. 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. In no case shall the time elapsing between the completion of charging to the time of blasting exceed 72 hours unless prior approval has been obtained from the Mine Safety and Health Administration.

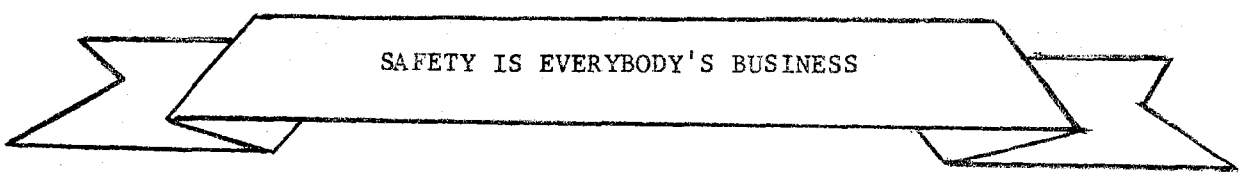
55.6-95 (Reserved)

55.6-96 Mandatory. Explosives shall be kept separated from detonators until charging is started.

55.6-97 Mandatory. Primers shall be made up only at the time of use and as close to the blasting area as conditions allow.

55.6-98 Mandatory.

(a) Primers containing a detonator shall be prepared with



(For use in surface metal and nonmetal mine)

the detonator contained securely and completely within the explosive charge or within a suitable tunnel or cap well.

(b) When using detonating cord to initiate another explosive, a connection shall be prepared with the detonating cord threaded through, attached securely to, or otherwise in intimate contact with the explosive charge.

55.6-99 Mandatory. Only wooden or other nonsparking implements shall be used to punch holes in an explosive cartridge.

55.6-100 Mandatory. Tamping poles shall be of wood or other material acceptable to the Mine Safety and Health Administration. Couplers of tamping poles shall be of nonsparking materials.

55.6-101 Mandatory. Tamping shall not be done directly on a primer.

55.6-102 Mandatory. Unused explosives and detonators shall be moved to a safe location as soon as charging operations are completed.

55.6-103 Mandatory. Areas in which charged holes are awaiting firing shall be guarded, or barricaded and posted, or flagged against unauthorized entry.

55.6-104 Mandatory. When safety fuse has been used, no person shall return to misfired holes for at least 30 minutes.

55.6-105 Mandatory. When electric blasting caps have been used, no person shall return to misfired holes for at least 15 minutes.

55.6-106 Mandatory. Faces and muck piles shall be examined by a competent person for undetonated explosives or blasting agents and any undetonated explosives or blasting agents found shall be disposed of safely.

55.6-107 Mandatory. Holes shall not be drilled where there is danger of intersecting a charged or misfired hole.

55.6-108 Mandatory. Fuse and igniters shall be stored in a cool, dry place away from oils or grease.

55.6-109 Mandatory. Safety fuse, igniter cord, and detonating cord shall not be used if they have been kinked, bent sharply, or otherwise damaged.

55.6-110 Mandatory. Fuses shall be cut and capped in safe, dry locations posted with "No Smoking" signs.

55.6-111 Mandatory. Blasting caps shall be crimped to fuses only with implements designed for that specific purpose.

55.6-112 Mandatory. 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.

55.6-113 Mandatory. When firing from 1 to 15 blastholes 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:

Number of Holes Per Round	Minimum Burning Time, Minutes
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.

55.6-114 Mandatory. At least two people shall be present when lighting fuses, and no person shall light more than 15 individual fuses. If more than 15 holes per person are to be fired, igniter cord and connectors or electric blasting shall be used.

55.6-115 Mandatory. All detonating cord knots shall be tight and all connections shall be kept at right angles to the trunk-lines.

55.6-116 Mandatory. Fuse shall be ignited with hot-wire lighters, lead spitters, igniter cord or other such devices designed for this purpose. Carbide lights shall not be used to light fuses.

55.6-117 Mandatory. Fuse shall not be ignited before the primer and the entire charge are securely in place.

55.6-118 Mandatory. When using safety fuse, where fly rock might damage unlit or burning fuses, timing shall be such that all fuses are burning within the holes before any hole detonates.

55.6-119 Mandatory. Electric detonators of different brands shall not be used in the same round.

55.6-120 Mandatory. Except when being tested with a blasting galvanometer:

(a) Electric detonators shall be kept shunted until they are being connected to the blasting line or wired into a blasting round.

(b) Wired rounds shall be kept shunted until they are being connected to the blasting line.

(c) Blasting lines shall be kept shunted until immediately before blasting.

55.6-121 Mandatory. When blasting electrically a blasting galvanometer, or other instrument that is specifically designed for testing blasting circuits, shall be used to test:

(a) In surface operations:

1. Continuity of each electric blasting cap in the borehole prior to the addition of stemming.

2. Resistance of individual series or the resistance of multiple balanced series to be connected in parallel prior to their connection to the blasting line.

3. Continuity of blasting lines prior to the connection of electric blasting cap series.

4. Total blasting circuit resistance prior to connection to the power source.

(b) In underground operations:

1. Continuity of each electric blasting cap series.

2. Continuity of blasting lines prior to the connection of electric blasting caps.

55.6-122 Mandatory. Permanent blasting lines shall be properly supported, insulated and kept in good repair.

55.6-123 Mandatory. 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.

55.6-124 Mandatory. When electric detonators are used, charging shall be suspended in surface mining, shaft sinking, and tunneling and people withdrawn to a safe location upon the approach of an electrical storm.

55.6-125 Mandatory. 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.

55.6-126 Mandatory. Electric power distribution circuits shall be de-energized within 50 feet of boreholes containing electric blasting caps which can be initiated by conventional power sources or extraneous electricity except that such circuits need not be de-energized between 25 and 50 feet of such boreholes when stray current tests, conducted as frequently as necessary, measure a maximum stray current less than 0.05 amperes through a one-ohm resistor measured at the location of the electric blasting cap.

55.6-127 Mandatory. 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.

55.6-128 Mandatory. The key or other control to an electrical firing device shall be entrusted only to the person designated to fire the round or rounds.

55.6-129 Mandatory. Electric circuits from the blasting switches to the blast area shall not be grounded.

55.6-130 Mandatory. At least a 15-foot air gap shall be provided between the blasting circuit and the electric power source.

55.6-131 Mandatory. Power sources shall be suitable for the number of electric detonators to be fired and for the type of circuits used.

55.6-132 Mandatory. Delay connectors shall be treated and handled with the same safety precautions as detonators.

55.6-133 Mandatory. If any part of a blast is connected in parallel and is to be initiated from powerlines or lighting circuits, the time of current flow shall be limited to a maximum of 25 milliseconds by incorporating an arcing control device in the blasting circuit or by interrupting the circuit with an explosive charge attached to one or both lead lines and initiated by a zero-delay electric blasting cap.

55.6-134 Mandatory. Tools used for opening metal or nailed wooden containers of explosives or detonators shall be of non-sparking materials.

55.6-135 Mandatory. Holes shall not be collared in bootlegs.

55.6-136 Mandatory. Black powder shall not be used for blasting except when a desired result cannot be obtained with another type of explosive such as in quarrying certain types of dimension stone.

55.6-137 Mandatory. In the use of black blasting power:

(a) Containers shall not be opened in, or within 50 feet of, any magazine; within any building in which a fuel-fired or exposed-element electric heater is in operation; where electrical or incandescent-particle sparks could result in powder ignition; or within 50 feet of any open flame.

(b) Granular powder shall be transferred from containers only by pouring.

(c) Spills of granular powder shall be cleaned up promptly with nonsparking equipment, contaminated powder shall be put into a container of water and its content disposed of promptly after the granules have disintegrated, or the spill area shall be flushed with a copious amount of water to completely disintegrate the granules.

(d) Containers of powder shall be kept securely closed at all times other than when the powder is being transferred from or into a container.

(e) Containers of powder transported by vehicles shall be in a wholly enclosed cargo space.

(f) Misfires shall be disposed of by: (1) washing the stemming and powder charge from the borehole, and (2) removal and disposal of the initiator as damaged explosive.

(g) Boreholes of shots that fire but fail to break, or fail to break properly, shall not be recharged for at least 12 hours.

55.6-138 Mandatory. Explosives or blasting agents shall not be loaded into drilled or sprung holes that could result in premature detonation from heat.

55.6-139 Mandatory. Blasting areas shall not be re-entered after firing until concentrations of smoke, dust, and fumes have been reduced to safe limits as required in, and determined by, mandatory standards 55.5-1 and 55.5-2, respectively.

55.6-140 Mandatory. Blasting circuits and electric blasting caps (which are capable of being initiated by conventional power sources) shall be protected from sources of extraneous electricity.

55.6-141 (Reserved).

55.6-142 Mandatory. Explosives or blasting agents shall not be loaded into boreholes through or with either drill stem equipment or other devices which could be extracted while containing explosives or blasting agents. The use of loading hose, collar sleeves or collar pipes is permitted.

55.6-143 through 55.6-158 (Reserved).

55.6-159 Mandatory. Powder chests shall be:

(a) Substantially constructed of nonsparking material on the inside.

(b) Posted with suitable warning signs.

(c) Located out of the blast area and out of the line of blasts.

(d) Emptied and their contents returned to the main magazine at the end of each shift unless the powder chest is located within the area continually attended by employees during shift changes.

(e) Separate for detonators and explosives unless separated by 4 inches of hardwood or the equivalent.

(f) Kept locked when unattended.

55.6-160 Mandatory. 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.

55.6-161 Mandatory. If explosives are suspected of burning in a hole, all persons in the endangered area shall move to a safe location and no one shall return to the hole until the danger has passed, but in no case within 1 hour.

55.6-162 Mandatory. 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.

55.6-163 Mandatory. The double-trunkline or loop system shall be used in detonating cord blasting.

55.6-164 Mandatory. Trunklines, in multiple-row blasts, shall make one or more complete loops, with crossties between loops at intervals of not over 200 feet.

55.6-165 through 55.6-167 (Reserved).

55.6-168 Mandatory. Misfires shall be reported to the proper supervisor and shall be disposed of safely before any other work is performed in that blasting area.

55.6-169 through 55.6-189 (Reserved).

Clarification: Standard 55.6-140

This standard requires that all blasting circuits and electric blasting caps, which may be initiated by conventional power sources, be protected from sources of extraneous electricity. For the purpose of this standard, sources of extraneous electricity include stray currents and static electricity. Potential conductors of stray current and static electricity are tracks (particularly those that may be used as an electrical return), pipelines, airlines, power lines, telephone lines, and water. In addition, other possible sources of extraneous electricity are two-way radios and lightning.

The methods for protecting blasting circuits and electric blasting caps from the potential sources of extraneous electricity are isolation, insulation, location and shunting.

December 1980

HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

Safety in Mine Haulage

Haulage accidents usually are responsible for about 17 or 18 percent of all mine fatalities and about 21 percent of all non-fatal mine accidents and are on the rise in 1980. When the relatively small number of employees continuously exposed to haulage hazards is considered, it would appear that haulage is a very hazardous phase of mine operation.

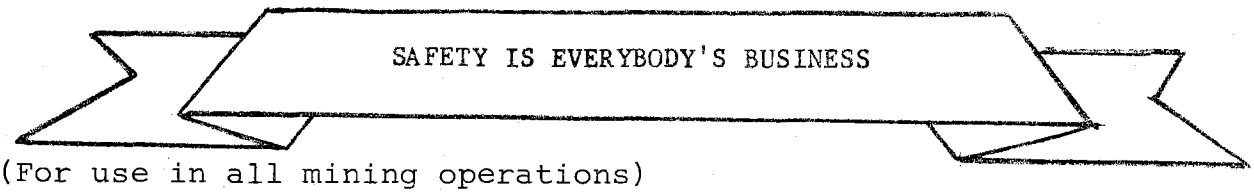
Haulage accidents have increased from year to year, due to the increase in electrical haulage, larger mine cars, heavier locomotives, longer hauls, and greater speed. Unless very definite steps are taken to eliminate the causes of these accidents, they will continue to increase rather than be reduced, as they can and should be.

Those engaged in haulage are naturally more exposed to haulage hazards, and it would be expected that such employees would suffer a greater loss than those engaged in other occupations. However, a study of experience over a five-year period in large mines shows that haulage employees suffered 43 percent of the haulage fatalities, while those engaged in other occupations suffered a loss of 57 percent.

Haulage accidents generally entail greater economic loss than other types of mine accidents, except for explosions and fires. As a rule, there is an interruption of production; there is usually loss from damage of equipment, in some cases there is definite damage to the mine, and haulage accidents can cause fires or explosions or both. The economic loss involved in haulage accidents should justify special efforts on the part of mine management to take all feasible precautions to prevent their occurrences.

Underground haulage in many of the large modern mines of today is similar in many respects to railroad practice. In recent years, the railroads have made wonderful strides in reducing accidents, and instead of being one of the most hazardous occupations, as it once was, railroading is now one of the safest. Doubtless, if thought and action similar to that given to reducing accidents among railroad passengers and employees were given to safety in mine haulage, underground haulage accidents could be reduced in about the same ratio.

Haulage accidents may be classified, according to responsibility, into two groups - those for which management is largely responsible and those for which the employee is largely to blame; there is, however, an overlapping of responsibility from one group to the



(For use in all mining operations)

other. If haulage accidents are to be reduced, it is absolutely essential that both management and employees cooperate to this end.

In the first group, for which management is largely responsible, may be included accidents due to faulty equipment, poor track, a poorly arranged system of haulage, lack of clearance or of overhead protection, and dirty roadways; even in these features, however, the employee is not without a measure of responsibility, as failure of haulage equipment possible may be due to lack of care on the part of the employee, the failure to report when equipment is out or order, or failure to do a good job of installing, repairing, or operating.

To the second group of accidents, for which the employee may be largely responsible, belong those caused by such careless practices as jumping on and off fast-moving trips, coupling on the "fly", running at excessive speeds, failure to properly block cars, and similar hazardous and unnecessary acts of omission or commission. If, however, management condones such practices or, as in some instances, insists upon them, it must accept its share of responsibility for the accidents that inevitably result.

By using extra care and more thought, haulage accidents could be greatly decreased.

(Note: See fatal haulage accident abstract included in this month's bulletin.)

December 1980

HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

An Accident?

You pick a number. The roulette wheel spins, and the man with the little rake draws your money towards him. You took a chance and you lost.

A guard is removed from a piece of machinery. Someone gets their arm caught. Is this an accident?

Cars are sent out on the road despite reports of defective brakes, poor steering, or badly worn tires. Through one of these defects, the automobile is involved in a collision. An accident?

There are broken steps on your premises. You know they are there, but no repairs have been made. Someone has a bad fall. Is this an accident?

The floor is wet beneath the light switch. The light switch cover has been broken and has not been replaced. Someone standing in a puddle inadvertently puts their finger on the electrical connection and receives a bad shock. An accident?

All catwalks should have guard rails. Yet in certain instances workers have fallen from catwalks because of the lack of a protective guard rail. Are these accidents?

A lot of so-called accidents are planned events. They happen because the way has been smoothly paved for them and only the exact time of their occurrence is unknown.

SAFETY IS EVERYBODY'S BUSINESS

(For use in all mining operations)

December 1980

HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

One Bad Apple

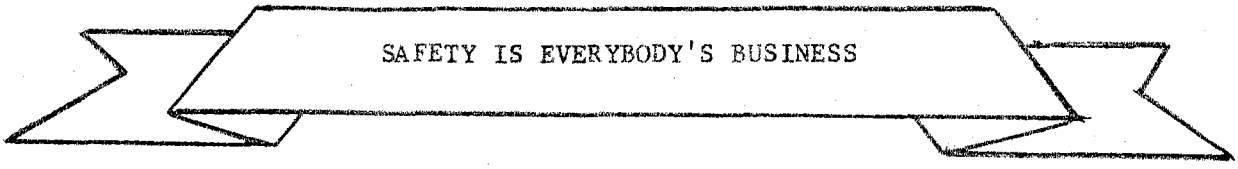
What is the individual employee's part in safety? How important is the observance of safety practices and safety rules?

We can say in answer to the first question that the roster of employees is composed of individuals, so it follows that each person's part is vital to a safety program and its results.

The program can be compared to a barrel of apples. If every apple packed in the barrel is absolutely sound, there is an excellent chance that the apples will be in good shape, fit to eat for a long time. Let one wormy or bruised apple be packed and, in a short time, a large portion of the contents will be spoiled.

The answer to the second question is simple. What you, what I, what the other person does is important to us, not just today or tomorrow, but indefinitely. Carelessness in securing a nut, failure to apply a key, to properly lubricate, to make a sound weld, in other words, failure to do a job right, can have an effect weeks or months later causing injury to someone.

How often do we read about accidents on highways in which the blame is placed on a driver who went to sleep? The same can be said about many other accidents. Somebody slept.



(For use in all mining operations)

December 1980

HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

Shock...Nature's Killer

While pursuing a wounded deer in the backwoods of New York State, a young hunter tripped and rolled 100 feet into a gully. Unable to stand on a broken leg, he crawled painfully through the underbrush, then fell exhausted where companions found him an hour later. They gripped him under the arms and helped him hobble back to camp.

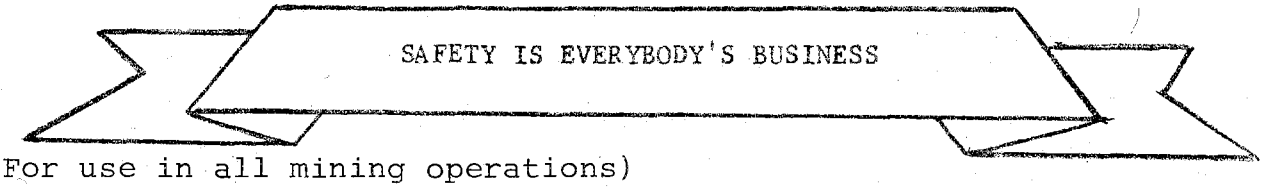
On the rough trail, he complained of severe pain in his leg and chest. "Just a few cracked ribs, nothing to worry about," diagnosed one companion, "we'll get a doctor in the morning." By night, the injured man seemed remarkably improved, much to the relief of everyone. His leg had entirely stopped bleeding, he no longer complained, in fact, he was indifferent toward his wound. But at daybreak, when companions tried to awaken him for a trip to a nearby doctor, he was dead.

His friends were stunned, for they had not suspected his critical condition. Had they been alert, however, they would have realized that he desperately needed treatment. His pulse was rapid and weak, his breathing shallow. His skin was pasty and wet, his eyes glazed and his fingertips blue. His speech was slow and slightly incoherent. In fact, he was suffering the classic symptoms of that mysterious killer known as shock.

Shock often lies undetected beyond a mask of more spectacular injuries, such as bleeding or severe burns. Its power is relatively unknown. It is rarely mentioned on death certificates, yet it has a hand in nearly all deaths from injuries.

Shock is the body's reaction to a major physical or emotional insult. Shock cannot develop by itself like a disease, but must be triggered by a sudden happening. A person can suffer shock from any injury; a burn, severed artery, broken bone, puncture wound, blow on head, serious infection, or even an emotional jolt, such as a loved one's sudden death. Some people go into shock at the sight of blood.

Unfortunately, a person cannot stop their body from going into shock any more than they can order their heart to stop beating or their lungs to stop expanding. Shock, like the heart beat and breathing, is controlled by the autonomic nervous system that works without willful direction from the brain.



(For use in all mining operations)

December 1980

HOLMES SAFETY ASSOCIATION MONTHLY SAFETY TOPIC

First Aid in the Mines

An important reason to learn first aid is to be able to aid the injured or suddenly ill person until a physician's professional care is available. If this were the only reason for first aid, it would be enough. There is, however, an additional benefit from knowing first-aid practices. That is, it develops an awareness of the hazards of unsafe actions.

Knowledge of first aid has the added benefit of letting you know which problems to handle first. For example, if a victim is not breathing and is also bleeding from an open wound, you should first get them breathing and then work on the bleeding. This can mean the difference between a bad accident and a major disaster.

Wherever you are, there is always the possibility that someone will need first aid. If you are near first-aid equipment and have such things as bandages and splints at hand in a clean, warm, and dry, well-lighted place, your job as a first-aid worker will be easier than if you do not have equipment and ideal conditions.

In a mine, conditions vary from place to place. Conditions in one part of the mine will be different from conditions in another. For example, one place in the mine might be muddy or extremely hazardous. These differences will make differences in the way you can give first aid.

In some ways, it is easier to provide first aid at a surface mine than in an underground mine. For example, it might be easier to remove a patient quickly from a surface mine for transport to a physician. In some underground mines, the trip out to the surface may be a matter of miles.

Water at a surface mine is more easily controlled than in an underground mine. At a surface mine, water can be diverted to streams away from the work area, and, even after a rainfall, gravity will help to remove water. At an underground mine, water must be pumped out, but sometimes there is so much water than pumps can't keep up with it. Underground mines, then, can be wet and muddy. Thus, if a mine worker collapses because of injury or sudden illness, they might be lying in mud. In an underground mine, air may be dusty, and lighting poor. You might be unable to see signs which would help you to determine what kind of aid a victim needs. There are things, however, which you can do for the victim and it is wise to become familiar with them.

SAFETY IS EVERYBODY'S BUSINESS

(For use in all mining operations)

An underground mine does have an advantage over a surface mine in regard to temperature and humidity. At an underground mine, workers are not usually exposed to extremes in temperature and humidity, as they are in a surface mine.

The important thing is for you to learn how and what kind of aid to give under ideal circumstances and then do the best you can if you find yourself in less than ideal conditions.

Almost every type of injury or sudden illness that happens outside a mine can happen inside a mine. For example, underground mining machines use large amounts of electricity; therefore, electrical shock or burns are possible. Workers can be cut while using machinery. Heavy equipment could fall on a miner's foot. A miner might lift an object that is too heavy and experience a sprained back or hernia. In any case, the first-aid worker has the same responsibility--to give immediate temporary care until the victim can be seen by a physician.

Only a physician has the training and experience to know exactly what the problem is and how to treat it. However, there are a number of emergency situations that may occur in which your aid for the general condition can save a life. These emergencies include: breathing problems, blood loss, shock, spread of poisoning, infection, fractures (broken bones) and dislocations, pain, loss of strength, a need for medical attention, and a need for transportation. When you find yourself in an emergency first-aid situation it is important that you know which of these conditions are most serious, and then act quickly to give aid.

What the first-aid worker does to help the victim is extremely important. It could mean the difference between whether or not the victim is alive for the physician to treat at all.

It is important to be sympathetic with the person you are helping, as it can make a big difference in how they feel and in turn how well your part in aiding them can be done. If you learn the proper first aid techniques, you will be confident, and that is a great help to the victim. Using a quiet voice and reassuring the victim will help also.

When first aid is described as giving immediate and temporary aid, the word immediate is the key to whether or not your help will do the most good. You must be able to quickly identify the kind of injury or illness the victim has. The miner you're helping might have more than one injury. Then you must be able to determine which is most serious, and therefore treat that one first. In a mine disaster, such as an explosion, many workers could be injured. In that case, you should be able to quickly determine which miner is most seriously injured and should be treated first.

Here is a list of conditions in order of seriousness:

1. Abnormal breathing--if the victim has stopped breathing, death will occur without immediate help.

2. Bleeding--in certain situations, loss of blood can be very rapid; death could follow very quickly.

3. Shock--this condition is more serious than most people believe. It is next in seriousness to bleeding and can also cause death. Because shock is present in almost all serious injuries, victims should be assumed to be suffering from shock, and therefore be treated for it.

4. Open wounds and burns--many kinds of complications can result from these injuries and lead to death of the victim.

5. Fractures and dislocations--only after victims have been given aid for breathing problems, bleeding, shock, open wounds, and burns, would you take care of these.

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