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Papers Delivered in the Metals Sessions

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SHOULD THE JOB SAFETY STANDARDS BE CITED FOR FAILURE TO COMPLY WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970?

By ROBERT D. MORAN

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Despite the complexities that have come to surround the Occupational Safety and Health Act in the nearly four and one-half years since it became law, its purpose remains clear and simple—the protection of American workers from on-the-job health and safety hazards. Every day, something like 175 employers are told by OSHA that they haven't fully lived up to this aim.

There are two ways in which these employers may have fallen short of meeting the Act's requirements. They may have violated Section 5(a)(1), the general duty clause, or Section 5(a)(2), the special duty clause, which makes them responsible for obeying some thousands of job safety and health standards which OSHA has put on the books. OSHA promulgated most of the latter pursuant to Section 6(a) of the Act, which permitted the adoption of certain types of safety standards which Congress defined as "national consensus" and "existing federal" standards. A special provision of the law permitted OSHA to do this without going through the careful screening process required by law whenever a federal agency issues regulations.

Over the past several years the federal courts have made it clear that the employer's general duty, over which there was initially a good deal of employer confusion and trepidation, must be "achievable"; that is, the recognized hazard from which workplaces must be free must be the kinds of hazards that "... can be totally eliminated from a workplace." And, further, there must be a showing by OSHA that there was specific, feasible, effective means to eliminate these hazards before it can substantiate a litigated charge made under 5(a)(1).

The point to be made here is that the courts have defined section 5(a)(1).

They have told us what the general duty clause means.

On the other hand, the Act itself provides the definition of the special duty clause, Section 5(a)(2), the standard, if you will, that OSHA's standards were to meet. An occupational safety and health standard, the Act says: "... means a standard which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment."

Do the OSHA standards fully live up to this requirement of the Act? Or should they be cited for failure to comply?

In my judgment, the answer to the latter question is "yes"—at least for some of them. In fact, I think quite a few OSHA standards do "violate" the spirit and purpose of the Act, as well as the letter of the preceding definition. Although I feel that some of the actions OSHA has taken in promulgating some things as standards could constitute serious "violations" of fairly high gravity, I'm not going to propose any penalties—but I would like to see some abatement.

Before turning to a few specific standards that I believe fail to comply with the Act, I'd like to discuss how we came to get standards that don't meet the law's requirements. There are two principal reasons: (1) Congress gave little thought and had little concern for what might be hauled up in the nets which it labeled "any national consensus standard, and any established federal standard"; and (2) the hurry-up atmosphere surrounding OSHA's use of the net when the Act took effect as law in 1971.

The first of these reasons was hardly a major sin. Congress faced many seemingly insurmountable obstacles in hammer-

ing out a bill that would be effective—and acceptable to the broad spectrum interested in this legislation. It hardly occurred to anyone that someday the initial standards might prove to be the problem area in the occupational safety and health program. (There may be a few people who still don't see it that way, but few of them have to meet the standards' requirements.) Even Congressman Steiger, the Act's co-author, felt there wouldn't be much to worry about in such wholesale standards adoption (at least, with regard to ANSI and federal standards) "because such standards have already been scrutinized...."

But the plain fact is that not even the ANSI standards had been put through the rigorous grilling they would have received had anyone anticipated their being handed down as the Ten Thousand Commandments. Said one ANSI official: "In the days before OSHA, when standards were developed as advisories, not laws, the committees sometimes tended to incorporate some lofty goals, knowing they would never be held accountable if they didn't achieve them."

The "established federal standards" (those promulgated under the Walsh-Healy Act are an example) are the source of many of the more troublesome regulations in the OSHA bible. They were scrutinized even less than the ANSI standards when they were first written. Most of them affected few firms; for example, in 1969 there were only about 75,000 firms with any reason to even know there were such things as Walsh-Healy safety and health standards, since that Act applied only to manufacturers doing in excess of \$10,000 worth of business with the Federal government. Compare that to the estimated five million workplaces covered by the Job Safety Act! We can safely state that only about one and one-half per cent of the firms who must now comply with these established federal standards were aware that they might be regulated by them when they were open for public scrutiny.

Even among those 75,000 firms there was probably little concern over what the standards required, since they were "enforced" using what can only be called a low-profile technique. Only 34 formal complaints were issued against non-com-

plying companies in the entire 12 months of 1969. That figures out to about 20 per cent of the number of citations issued in just one day during the current year.

But, as I said, few people even in the job safety field anticipated trouble with the initial standards, national consensus or federal, so Congress really couldn't have been expected to do so either. There were voluminous hearings and many, many witnesses testified. But nobody—not a single soul—mentioned any possible difficulty in abiding by the then existing ANSI or Walsh-Healy standards.

OSHA's haste in casting the net Congress provided could hardly be called a sin either. In fact, the speed with which the standards package hit the streets was commendable—after all, the reason behind this haste was to get into the business of protecting working people. One would be hard pressed to defend delay in an area where lives and their quality are at stake.

However, because of the rush in which the initial standards were adopted, we got a lot of would-be regulations that didn't fit the Act's definition of what they should be and what they should do. The initial package (and virtually all of it is still around) contained in profusion standards which were: (1) not binding, not enforceable, and not written in terms amenable to enforcement; (2) not exclusively concerned with worker safety (that is, the safety of equipment, buildings, consumers, the general public, and workers was intermingled); (3) not applicable to industry as a whole, or in some cases, even to all parts of a single segment of an industry; (4) not without conflict and inconsistencies; and (5) not specific enough so that an ordinary businessman or employee could understand them.

All of these problems could have been alleviated before OSHA standards were first promulgated in 1971, but speed was the order of the day at that time. It seems to me that OSHA has subjected the employers and employees of America to that same frustrating experience endured by millions of military personnel whose routine regularly included what has come to be known as the "hurry-up and wait" syndrome.

Nevertheless, as I said, the "hurry-up" part of OSHA's standard promulgation

had its virtuous aspects. The "and wait" of the past four years, however, leaves a lot to be desired.

Nor is it easy to understand. After all, the sanitation standard was rather rapidly overhauled shortly after OSHA got the horselaugh over the daily cleaning of cuspidors and the iceless icewater that were included in the national consensus standard originally published. Perhaps it's too bad that all the inadequate standards aren't funny, since it seems to take ridicule to get them changed.

What I am talking about is not the esoteric or obscure. A number of standards which, in my opinion, do not meet the criteria which the Act says that they should fulfill are contained on the list of OSHA's 25 most-cited General Industry Standards. Three of these, for example, deal with the maintenance and placement of portable fire extinguishers. Fire extinguishers, it has always seemed to me, are fine for protecting property—but the definition of a safety and health standard says that such a regulation must help to provide safe employment and places of employment. Do these standards and the emphasis on them work to that end?

Let us first consider what *America Burning*, the Report of the National Commission on Fire Prevention and Control, tells us about how people die in fires. The largest group of fire fatalities, concludes the report, is the result of asphyxiation. Fire consumes the available oxygen. When the oxygen level in the surrounding air reaches 17 per cent (or only about three per cent below the oxygen component of the normal atmosphere) thinking may be difficult and coordination can suffer. Below 16 per cent a person may become muddled and irrational, making escape difficult, and further drops rapidly lead to fatigue, loss of consciousness, and death.

The next most common cause of death is attack on the lung tissues by superheated air or gases, particularly hot smoke with a high moisture content. This is followed as a cause by smoke inhalation, and, in fourth place, by poisoning from toxic products released by the fire. Last on the list of causes of death are the flames themselves, and chances are the victim would probably not have suffered fatal burns had not one of the first four

products of fire rendered him incapable of escaping from the flames.

Fire extinguishers are useful only on the flames, and then only if the fire isn't too far advanced. Getting out is the only way you can protect yourself from the first four.

Any delay in escaping a fire can be fatal. The January 1975 issue of *Fire Journal*, the bimonthly publication of the National Fire Protection Association, relates the story of the assistant manager of a resort hotel who, after ordering the evacuation of guests and others stayed behind to fight the fire with portable extinguishers. He apparently became disoriented and unable to find his way to the stairs to escape. He was found dead of carbon monoxide poisoning by firefighters.

In her recent book, *Muscle and Blood*, Rachel Scott suggests that 91 workers' lives were lost in the Sunshine Mine disaster because the evacuation order was not given when the fire was first discovered. Whether this is true or not, logic would seem to require that a worker who delays his exit from a burning workplace in order to fight the fire with a portable extinguisher is dangerously increasing his hazard-exposure. I sympathize with the owner who wants to save his property and the insurance companies who want to keep property losses to a minimum. Fire extinguishers—properly handled by people—will help. But they do not implement the purpose of this law—a law designed exclusively to reduce hazards to employees.

Another of the more popular standards for OSHA's enforcement, number 17 on the same list which contains the three fire extinguisher standards, concerns marking the load limits of floors. This is probably a good idea; I'm sure that employees are protected if floors aren't overloaded to the point of cave-in at their workplaces. But listen to the language of this standard: "In every building . . . used for mercantile, business, industrial, or storage purposes the load approved by the building official shall be marked on plates of approved design . . . and affixed by the owner of the building...."

First of all we note that the meaning of "approved design" for these load plates and where these plates are to be posted

aren't explained, but these are minor problems compared to those raised by other aspects of the standard.

One of the larger problems is that the standard is clearly aimed at the "building owner," not the employer of the people who work there, who may or may not be the same entity. In one of the earlier Review Commission cases, an employer cited for violating this standard only rented his building, and therefore, this standard could not be enforced against him.

Then, there's the "building official"—not just "a" building official, but "the." In a number of cases, cited employers have stated that they didn't know who "the building official" was. Various OSHA inspectors have testified in these cases, that "the" could be an architect, a state building inspector, any structural engineer, city or county inspectors, the plant engineer, or "any individual who was qualified to determine the maximum weight that could be placed on a floor." If OSHA isn't sure who this mystery official is, how can anyone else be expected to know?

This regulation simply does not pass muster as an occupational safety and health standard. You'll notice that it doesn't prohibit the overloading of floors. It simply requires that the load limit be posted.

Why, if OSHA can cite employers for allegedly violating this standard 3,287 times in 1974, couldn't it have taken the time to specify what an employer must do in order to protect his employees' safety—and then change the standard accordingly? This standard is in non-compliance with the Act. It lists no condition, practice, means, method, operation, or practice to protect employee safety or health.

So much for number 17. Let's look at number 25 on OSHA's hit parade. This standard happens to be one which I have discussed before. So have many judges and many courts. It is, of course, the personal protective equipment standard. I'd delight in never having to mention it again, but it's a classic example of a standard which does not meet the Act's criteria for a proper occupational safety and health regulation. It neither names a hazard nor specifies steps ("practices, means, methods, operations, or processes") to guard against the hazard. The essence

criticizing this nebulous standard in a case involving a utility company charged with violating the regulation by OSHA employees. The lineman who was electrocuted was wearing rubber gloves covered with leather protectors and a hard hat. The wires he was working on were energized, other nearby wires were covered with protective rubber hoses, and still other protective measures were taken.

Nevertheless, the lineman somehow touched a wire far from the wire he was working on. Enter OSHA with a citation saying the company failed "to provide a protective shield . . . in necessary circumstances by reason of environment . . ."

Eventually the case reached the court of appeals, which threw out the citation. Said the court of the regulation on which OSHA based its charge: ". . . the language of the standard alleged to be violated affords little if any concrete guidance. . . . A regulation without ascertainable standards, like this one, does not provide constitutionally adequate warning to an employer unless read to penalize only conduct unacceptable in the light of the common understanding and experience of those working in the industry."

The court concluded its decision with the reminder that, if there were reason to take further precautions than those which were common practice in the electrical industry, ". . . the secretary of labor may exercise the option of promulgating specific standards of his own governing electrical line workers."

The failure of OSHA's standards to comply with the principles of the Job Safety Act is not limited to the difficulty of interpretation. Even where the standards seem straightforward and deal with what appear to be obvious physical hazards, concentration on their enforcement by reducing the time and resources available to combat the unseen, slow but deadly deleterious, and principal causes of on-the-job harm, may fail to achieve the end to which the Act is directed. Such enforcement is like "solving" a murder mystery by arresting the wild man brandishing the ax when the victim has been poisoned.

What I have in mind here is the emphasis by OSHA, as evidenced by their

own most-violated list, on citing easy-to-catch infractions. I don't just mean the examples I've used earlier—fire extinguishers and floor load marking. There are at least 14 other standards in the top 25 that may not be doing the job. These 14 standards, all dealing with "guarding" something or other (machines, pulleys, platform sides, etc.), were cited over 65,000 times in 1974. They represent 43 per cent of the total top 25 violations (or 56 per cent when the somewhat misleading National Electrical Code violation category is eliminated).

Now, there is a very interesting 1971 study (funded, incidentally, by OSHA) which was done in Wisconsin. It addressed the enforcement of just this sort of standard. The report, which notes that Wisconsin codes for such guarding were more strict than OSHA regulations, stated that "guarding problems comprised the majority of violations (82 per cent in 1969 and 66 per cent in 1970)" but, the study found, only 8.6 per cent of the accidents studied related to guarding problems. Fully 52.4 per cent were attributed to behavioral factors (i.e., unsafe acts) and about another 23 per cent to non-persistent hazards. The study concluded that the traditional approach to job safety with its emphasis on inspection for persistent physical hazards could do only a small amount in reducing the accident toll. The study suggested: "To be able to effectively control accidents, a system approach must be instituted. This approach would involve physical hazard codes with an inspection system, performance codes to control unsafe acts when they are detected, and a training and education system to educate management and workers in safety procedures. . . . Using one approach does not take into account the diverse nature of accident and illness experience. . . ."

I don't suggest the discarding of any of these very popular (with OSHA inspectors) guarding standards. I do think that the bloated emphasis on them is misplaced and, indeed, a disservice to the cause of worker safety and health. These "violations" are easy to cite, but the name of the game is not citations galore—it's eliminate hazards.

It's time—it's well past time—to recognize, as Marshall Miller, special assis-

tant to Secretary of Labor Dunlop, did last July, that there are a lot of "Mickey Mouse" regulations as well as many that deal with property protection, and that there are important areas without any standards at all.

It's time to recognize, as has Barry Brown, former Director of the Michigan Department of Labor, that "A healthful, sanitary, well-lighted, completely protected workplace may still be the locus of many severe and disabling accidents. Attitudes, behavior patterns, horseplay,

preexisting conditions, and employee activities outside the workplace may still be predominant causal factors in accidents." It's time to stop waiting for dim custom and crawling case law to fill in the blanks of ill-wrought regulations.

It's time for the standards and the enforcement thereof to comply with the Occupational Safety and Health Act and "assure safe and healthful working conditions for working men and women" of America.

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DEVELOPING JOB PRIDE IN THE WORK FORCE

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The theory of behavior reinforcement is as old as the hills. The practice of the technique in the work place is comparatively new. We know from reading the early writers that people tend to repeat behavior which is satisfying and pleasing to them. In short, they try to satisfy their needs. Behavior reinforcement comes about when people are rewarded (find pleasurable experiences) for successful accomplishment of a desired act. The more "good" behavior is reinforced, the more the likelihood of it being repeated. On the other hand, allow desired behavior to go unnoticed, and we reduce the possibility of it being repeated.

Behavior is influenced by its effects. This is the psychological basis for positive behavior reinforcement. B. F. Skinner, in his book, *Beyond Freedom and Dignity*, gives much information on this topic.

Usually when one discusses behavior reinforcement techniques, he encounters arguments to the contrary by advocates of strict discipline, tough minded management, etc. Really, there is no basis for argument. Behavior reinforcement will not eliminate the need for discipline. If effectively applied, however, the need for discipline may not be as frequent. To oversimplify, discipline is a negative technique, behavior reinforcement is a positive one. In addition, reinforcement is not a substitute for management. It will not replace the need for training. It will, however, serve as a positive motivator for industrial and governmental workers at all levels.

In loss control, behavior reinforcement can be a powerful tool. It deals with the positive side of the motivational coin. Tradition may stand in the way of its use. For years, safety people have looked for (and therefore stressed) the negative. For example, we seek out unsafe behavior and unsafe conditions. Maybe we should stress safe behavior and safe conditions. It is not too late to change. Why not give

our attention to the positive?

How does it work? Let's look at an example. A few years back, at the University of Wisconsin, an experimental project using positive behavior reinforcement was undertaken. The working experiment dealt with disturbed five- and six-year-old children. These children were unable to attend the public schools. They were over-active and "discipline" problems of the first order. They were unruly and disruptive. As they were, they were probably doomed to "no education" and possible institutionalization.

Several teachers worked with this group of students for two semesters. Positive behavior was promptly rewarded. Negative behavior was largely ignored. Very early in the experiment the students learned that if they wanted "attention" they had to get it through positive (acceptable) behavior. Classes were conducted much like those in the typical public school setting. The merits (or lack of them) of this setting will not be discussed here. If a student performed something (almost anything) in a positive manner, he was immediately rewarded. Rewards, in this case, were tokens that could be traded for merchandise. The trading session took place at the end of the school day. The rewards (tokens) were given immediately after a desired bit of behavior was demonstrated. Improvements were noted early in the behavior of individuals in the group. By the end of the two semesters, over 70 per cent of the students were able to transfer and successfully matriculate in the public schools. About 10 per cent were re-cycled into another experimental group and eventually improved. About 20 per cent were not helped sufficiently to allow them to attend school with "normal" children. As these results are reviewed, it appears evident the technique works. Casebooks are filled with such success stories. Behavior reinforcement has been successfully used to treat severe emotional illnesses.

Although to date the bulk of the work in this area has been done in institutional settings, several workplace success stories are available in the literature. For example, a large telephone organization was able to measurably reduce absenteeism by the use of this technique. The rewards needed with normal people can be of a more intangible nature, and this is a plus factor.

What are the real motivators of people? Much has been written in this area. Participative management relies strongly on motivation of individual workers and supervisors for success as a technique. To truly understand what motivates people, it is necessary to examine their needs. One of the world's leading psychologists, Dr. Abraham Maslow, developed his famous "hierarchy" to assist in the understanding of this topic. At the bottom of the scale he pointed out that people have certain basic needs, such as food, clothing, shelter, safety, and the like. The top two-thirds of his hierarchy is devoted to needs which we learn, such as group membership, acceptance by our fellow humans, the feeling of importance, self-expression, and so on. Maslow pointed out (and hence: hierarchy) that we usually do not require satisfaction of the higher needs until the lower ones are satisfied. In America, most of the lower needs of people are well met. Therefore, the industrial society sets its sights on achieving the higher ones.

Today, workers seem to be saying, "What's in it for me?" This poses problems for management and for organized labor as well. Group security seems to have taken a back seat to higher individual needs. Here is where behavior reinforcement techniques can help, since they focus on areas approaching the higher needs of people.

Why do people behave unsafely in the first place? Only rarely can we say that they behave in an unsafe manner because they do not know better. According to Skinner, they may well be behaving that way because their unsafe behavior has been, and continues to be, reinforced by satisfying events. Simply, they get more "kick" out of behaving unsafely than in doing things right. Look at some of your problem cases (people) and see if this is not so. When people do things right, they

are largely ignored. We have a tendency to say, "That's their job." Management truly appreciates a loyal, conscientious employee. Make no mistake about it. But, perhaps because we are used to searching for the negative, we fail to recognize the "good" employee. If this is the case, we are doing our workers and our organizations poorly. If a worker behaves unsafely, and is caught in the act, at least someone is paying attention to him. Being the center of attention occasionally is pleasant for almost everyone. We should make sure that people become the focal point for positive, rather than negative things.

Many loss control managers undoubtedly will say that we do stress the positive. Do we do it often enough? Are we sincere about it? These are questions that need answering. Here is a simple test we can use to determine how positive we really are. Look at a random number of personnel files. Count the number of positive and negative things (letters, warnings, anecdotes, etc.) that are found there. Many people who have tried this report finding many times more negative than positive items. The larger number of negative items may be due, in part, to requirements of the labor contract—but not all. How does one use the safe behavior reinforcement tool? The following steps are a guide that will help us get started.

1. Determine a positive goal.
2. Select the performance (behavior) desired.
3. Divide performance into steps (may not be necessary in all cases).
4. Select the reinforcement to be used.
5. Reinforce (reward) the desired performance.
6. Keep it up.

By determining a positive goal (Step 1), we focus our attention on what it is we wish to accomplish. Examples might be items such as reduced absenteeism, less fork-lift damage, reporting of property damage accidents, reduced production errors, reporting incidents (near misses), etc. Let's use the six steps and work through an example of applying behavior reinforcement. Suppose we set a goal of getting near misses reported. We have determined from the Heinrich ratio that for every serious injury there are 800 noninjury accidents (incidents). The latter International Safety Academy study

shows that for every serious loss there are 600 incidents. Since incidents are usually not reported or investigated, much valuable information about potential loss causes is lost, even though we have stressed near-miss reporting.

With our goal in mind, we now move to Step 2. The behavior we desire is that every employee will report incidents to his supervisor. Step 3, in this case, might well be broken down into two sub-steps—that of reporting the incident, and the willingness on the part of the employee to sit down with his supervisor and supply information necessary for the completion of an incident report. (The accident reporting form might well be used for this, or the accident investigation form.)

Step 4, selecting the reinforcement, is not difficult, but certain factors have to be kept in mind. The Wisconsin experiment cited earlier uses a very tangible reward (reinforcement) system. With normal adults, the reinforcement need not be this structured. In our example, a note of appreciation from the works manager to employees who report incidents might well suffice. As the system gathers momentum, a story in the house organ praising the efforts of employees to uncover potential loss causes could be printed, high-lighting the department which had the most employees taking part. Later, departmental honor rolls could be posted, naming people who participated. When incident investigations uncover loss causes heretofore unknown, a special letter from an executive could be sent to the employee's home and a copy placed in his personnel file. Perhaps the best reward will come from the fact that the supervisor has had a personal relationship with the employee during the reporting process. Bonus factors will become apparent in production and quality control as well. It is often said that we need to know what skilled employees think about our processes and activities. What better way to achieve this than through a behavior reinforcement program? We have only mentioned a few types of reinforcements here. Others, probably better than these, may be utilized when viewing our own work situations.

Step 5 is very important. Once the reinforcement to be used is agreed upon, it must be used every time the desired behavior is demonstrated. We must be sin-

cere as well as accurate in reinforcing desired behavior. The employee must perform in order to be rewarded. If good behavior is not reinforced, or if someone undeserving is rewarded, the technique will not help us achieve our desired goal.

Step 6, "Keep it up," means just that. We keep it up until our goal is achieved. When we decide that we have gotten sufficient incidents reported and the pay-off has been determined, we will publish our results, express our appreciation (another reward) to all who participated, and stop the incident program. We may return to it later. Some organizations have an on-going incident program—it all depends upon our situation. We will not stop reinforcing desired behavior of other types, however. We want the positive behavior that has been developed to continue. It usually does.

What do we do about the guy who did not participate? This is a question often asked. Not participating is negative behavior. We certainly do not want to reinforce the negative, so perhaps it would be better to ignore it. This technique is fundamental to the safe behavior reinforcement tool—we stress the good and ignore the bad. The point must be made, however, that in certain cases we cannot ignore all bad behavior. If it is almost certain to cause loss, we must stop it—by whatever tool.

What are the limitations of the safe behavior reinforcement technique? Behavior reinforcement will not replace job training, eliminate all need for discipline, or replace sound management techniques. We still have to train, correct wrongs, and manage our operations. Behavior reinforcement will build a more productive and efficient work force wherein the positive effects of training will be further enhanced, the need for discipline will be reduced and the job of management will be made much easier.

Though the concepts of behavior reinforcement have been with us for years, it has only been recently that its use and benefits have been observed in private and governmental management systems. Those that use it say that it is a refreshing tool that takes advantage of the positive side of the management coin. To acquire its benefits, we have to use it. Hopefully, we will.

ACCIDENT PREVENTION

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Having been a part of the steel industry for many years, I feel a special closeness to the National Safety Council. As I'm sure you are aware, its origins lie in the steel industry's concern for the safety of its workers in the early years of the century. The Council's work during these past 60 years as a national clearing house for safety in all its aspects, and its promotion of accident prevention, have contributed and continue to contribute in a most important way to a better life for all Americans. The whole safety movement, which exhibits man's concern for his fellow men deserves to be recognized for its worth at any time, but perhaps most especially as we move into our nation's Bicentennial Year.

Certainly, those of us engaged in the nation's industrial activity know full well the Council's efforts.

I must admit to approaching this discussion with a certain reservation. Partly it arises from the fact that our company, despite determined effort, is struggling this year with the frequency curve. I can't stand here and say, "Do as we do." An even more compelling reason for hesitancy simply is because I'm facing the experts. You people are the professionals and as a member of operating management, I feel that probably I should be listening to you.

On the other hand, I'm sure none of you would profess to having found the ultimate answer to accident prevention. Certainly I haven't, even though I've had some years of experience with industrial safety. I've not gathered these few gray hairs for nothing. I have acquired them in four decades in the steel business, and quite a few of them came from my concerns for the plant safety record.

I think you might agree with my observation that those of us responsible for the safety of people on the job feel a real sense of satisfaction when things are going right; and when things are going wrong, a sense of utter frustration.

Going through some material the other day, I found this little bit about safety. I'm sure it was paraphrased from something else, and it's facetious, but I suspect you can relate to it.

It consists of a short series of statements called "constants," which means that they remain true in all circumstances at all times, no matter what:

Constant 1: In the field of industrial safety, everything that can go wrong, will go wrong.

Constant 2: Everything goes wrong at the same time.

Constant 3: If there is a possibility of several things going wrong, the one that will go wrong is the one that will do the most damage.

Constant 4: Information that makes necessary a change in a safety program will be brought to the attention of the safety man only after all plans are complete.

Constant 5: In the collection of safety data, the figures that are obviously correct beyond all need of checking are the ones that contain errors.

And Constant 6 is the one that probably caps them all. It reads simply: If everything seems to be going well, you have overlooked something.

Certainly the thing we cannot overlook is that which we call "safety attitude." This lies at the heart of any successful safety program. It is the core of the apple. It is the foundation upon which favorable safety records rest. It is the key to accident prevention. It is the final result of the whole body of safety knowledge. It is the culmination of the satisfactions and disappointments of you who are actively engaged in trying to reach the goal of the perfect safety record.

So, I'd like to talk for just a few minutes about some of the elements which I think go to make up the kind of safety attitude which keeps industrial people working safely and reduces the economic loss which is detrimental to employee and

employer alike. If you hear nothing new, you won't be surprised, I'm sure, but it does serve us well, from time to time, to be reminded that when it comes to safety we're all in it together—from top management on.

In this regard, I am in agreement with Bill Murphy, a veteran steel maker and a former union president in our plant in Struthers, Ohio. Mr. Murphy, who presently holds a responsible position in the safety field as superintendent of the Division of Safety and Hygiene in the Industrial Commission of Ohio, has said: "There is no better ground for the meeting of the minds of labor and management than in the field of on-the-job safety ..."

It most certainly is true that the ideal safety attitude can be built only when there is cooperative effort at all levels of the industrial structure. First, it has to be reflected in top management's clear and enthusiastic support of good safety practices and in a continuing effort to provide the best possible working conditions.

Now, that's an easy statement to make. It's a lot easier to make than to follow because demands upon the resources of almost any enterprise come from every side. Management's job is to allocate time, money, and effort to those things—those forces—which will keep the enterprise healthy and growing, providing jobs and opportunities for its employees and a return on investment for its owners. And safety, like it or not, is just one—a highly important one, to be sure—of those forces.

Vincent Totany, President of the National Safety Council, when he was in our area last spring, expressed this very pragmatic thought: "Safety programs, from one end of the country to the other, face a genuine threat today. The threat does not come from indifference or recklessness, but from the hard facts of economic stress. The typical American executive, whether he heads a small company or a giant corporation is dismayed by the economic situation that confronts him. Dollars are harder and harder to get. And each dollar, even when he can get it, buys less and less."

Mr. Totany has put his finger on an acute problem and one that exists, not just in a time of economic stress, but in

greater or lesser degrees at almost any time and, of course, varying from enterprise to enterprise.

Mr. Totany goes on to point out that work accidents in themselves are an economic force, a tremendous economic waste and a cost which adds fuel to the flames of inflation.

These economic forces have always existed. And today there are others; namely, those laws and regulations emanating from the legislatures, federal and state. I'll not dwell on these except to note the hard fact that they are with us; we must cope with them and seek in a positive way to solve the safety problems which gave rise to them in the first place.

My point is that even when management fully recognizes its responsibility toward building the ideal safety attitude, it faces restrictions that often shift added responsibility upon the shoulders of those charged with implementing management safety policy. A clear and aggressive safety policy may be a first, basic step, but putting it to work is still another matter—and the ball passes to you, the operating managers and the professionals charged with the responsibility for building the Safety Attitude.

It is here that techniques come into use. Here is the field for trial and error, for statistics, for studies, for the use of communications media, both verbal and visual, and for the imaginative use of all the tools at hand to truly instill safety first in the minds and actions of our people. It involves enlisting the help, support, and influence of the labor organizations to which employees may belong.

Incidentally, it is my opinion that the union-management committee, built and operated on mutual trust in a common cause, can be a powerful force in building the ideal safety attitude. In my years of plant management, I have always welcomed and encouraged this cooperative effort.

With the computer being so widely used in industry today—solving or creating problems, I'm not sure which—some of you may be trying to adapt that electronic marvel to safety problems.

There's the story of the computer arriving at a business firm and found to be too large for the elevator. The delivery man was scratching his head and wonder-

ing how in the world he was going to get that big thing onto the tenth floor.

But the safety man saw no problem. "Just plug it in," he said, "and let it work the problem out for itself."

Wouldn't it be great if it was that easy!

I'm sure you concur in the thought that the key man to safety in an industrial situation is the foreman, the front-line supervisor. There's no doubt about it and I'm sure that the foreman is well aware of it. Very likely you never let him forget it. Nor should you, of course, because he literally is in charge of the field of battle. He's closest to the firing line; he's the one most knowledgeable of his department's operations, of the hazards that threaten, of the potentials for danger.

In some of your more desperate moments you probably have thought about assigning a "foreman for safety" in each department, serving alongside the foreman whose sole responsibility is production. That, of course, is a gross impracticality. Even where working conditions are perfect, there would be conflict between the relative importance of production rate and safety practice. This, in effect, is the position of almost every front-line supervisor, and often he has my sympathy.

It behooves you, as the safety professionals, to lend every possible assistance to the foreman in his chore of building the ideal safety attitude among his people. This means giving him the tools with which to work, the ammunition to fire, the means of instilling the ideal safety attitude among those for whom he is responsible.

I don't profess to be an expert in the nuts-and-bolts of safety, but I do believe strongly in job safety analysis. In my experience, this step-by-step disassembling of an act of work, the process of laying out into full view each separate part of a work process, is a most effective way to create a safe worker. It is effective because it creates understanding, and I venture to say that lack of understanding is the most hazardous part of any job. I recommend job analysis, because I've seen it work.

But safety goes far beyond a safe working place and safe working practice. Ultimately, it lies within the mind and heart of consciousness of each individual; it lies in an understanding of the job and an awareness of individual responsibility. It has been my experience that safety is practiced best when rules and regulations, reached through mutual agreement, are clearly stated, fully understood, and enforced firmly and fairly without hesitation.

So, it seems to me that we are all in this together—management, professional safety people, supervisors, and workers. Since I must admit to being a sort of common garden variety engineer, I can't help likening our safety effort to a giant flywheel. To make it spin requires lots of effort, but when you get it rolling, it sure does spin smoothly. In fact, so smoothly we sometimes fail to notice that it is slowing down until our safety records start to fall apart.

Don't let this happen to you. Keep your personal flywheel spinning. Set a goal worthy of your people—achieve it, and set a better one!

76 1716

NEW EMPLOYEE SAFETY ORIENTATION

By **BERL T. ELLIS**

Supervisor, Safety and Industrial Hygiene, Armco Steel Corp.,
Kansas City, MO

New employee orientation, as well as other types of training, is very important at Armco because we feel Armco's greatest asset is its people. George M. Verity, founder of our company, stated that each side of the Armco triangle had a meaning. One side was for safety, one for quality, and the other for production. His beliefs were reaffirmed in 1919 with the adoption of the Armco policy, which in part states: "Concerted effort is continually to be made to provide equipment such as will make for cleanliness and orderliness and safety, and such training as will reduce to a minimum the possibility of accidents throughout the organization."

This is the reason behind our orientation program for new employees. Safety training must start at the time of employment and before the employee starts to work. The new employee begins to form attitudes about the company from the day he fills out the job application form. He does so whether or not the employer makes an effort to train him. So, we must make sure he learns the things he needs to know to help him form the proper attitude towards the company, his supervisors, co-workers, and safety. In other words, give him the right kind of start.

We at Armco Kansas City have conducted orientation sessions for many years. However, it was not until 1960 that we developed our first slide presentation based on an outline suggested by the Training Director's Society which included such things as: a welcome that will make them feel that they are wanted, a little about the history of the company, a picture tour of the plant, a little about the company's products, emphasis on what is expected in the area of safety, such as company's safety policy, general safety rules, safety experience, rules for wearing of various types safety equipment, off-

the-job safety, some of the do's and don'ts, use of emergency equipment, procedures for reporting of injuries, hazards of such things as wearing finger rings and long hair on the job, and a summary to make them feel that the company is truly concerned about their welfare.

Our new employee orientation consists of 100 35 mm slides set to a low background of music, and takes 35 minutes to present. The orientation opens with a welcome by the works manager, then quickly shifts in narration to a local disc jockey who takes them on a tour of the plant with a little comment about each of our 11 major products. I, as supervisor of safety and industrial hygiene, come on next to discuss a little of our history in safety, Armco's safety policy, and OSHA.

The narration then changes back to the professional, who discusses some of the do's and don'ts of safety, why certain personal safety equipment is required, various safety rules, and a number of other safety related items. Our general superintendent of operations then comes on, summarizing what has been said and wishing them a long and safe employment with Armco. Open discussion follows.

Orientation of new employees at Armco does not stop here. What we have just covered is a general type orientation conducted by the safety and industrial hygiene department, and is only a portion of the total program. Each operating department has their own orientation, which deals with specific items within that department and the job on which the new employee will be working.

It all boils down to this: Tell the new employees what they need to know, and make them feel they are a part of the organization. If we accomplish these two things, we should have our new employee well on his way toward being the safe, productive employee we all want.

AUDITING A SAFETY PROGRAM

By R. L. KESLING
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Industrial Relations Dept., Bethlehem Steel Corp., Bethlehem, PA

To audit means to examine closely, to verify. To audit may sound like an accounting function, but any activity for which a specific goal has been set can be audited.

A safety program can be audited—that is, it can be audited if it assigns jobs and responsibilities to specific people. However, if a safety program does not require such responsibilities and specific activities, it can't be audited. In fact, it is questionable if it's a safety program without such assigned responsibilities and activities.

At Bethlehem we assign both safety jobs and responsibilities, and my subject here is the safety program audit procedure of Bethlehem Steel Corporation.

One might well ask, why audit a safety program? Don't injury frequency and severity rates tell you all you need to know about accident prevention programs? No! These rates are often erratic and, even if not erratic, they don't tell us whether the accident prevention tools are being used as they were designed to be used. Only auditing tells you if your accident prevention tools are being used—and used properly.

Before going into a description of our audit procedure, and to provide a clearer understanding of its operation and objectives, a short review of the accident prevention tools in Bethlehem's program would be helpful. Our principal tools are accident investigation, job safety analysis, job safety training, planned safety observations, corrective procedures, and physical inspections.

Accident investigation has two purposes: First, to determine the causes of an accident so those causes can be eliminated; and second, to provide cumulative data so that accident factors which keep repeating can be spotted and eliminated. A job safety analysis sets down in writing the steps of a job, the hazards of each step, and how to avoid these hazards. It

describes the safe way to do the job. Job safety analyses, along with safety rules, are material for job safety training.

Job safety training is accomplished through both group meetings and planned personal contacts. Bethlehem emphasizes training through planned personal contacts, from supervisor to worker.

After men have completed job training, they are then periodically observed at work to determine if they are working as instructed. If they are, they are complimented. If they are not, they are corrected. This is usually done through a reinstruction contact on how to do the job safely.

Another accident prevention tool utilized by the supervisor is the planned safety inspection—inspection of tools, equipment, and the entire physical environment. This is essential because these things change. The need for repairs or replacements must be determined before the work environment becomes unsafe.

How successfully the safety program eliminates accidents depends upon the proper use of these accident prevention tools.

In 1960 our disabling injury frequency was moving up when there appeared to be every reason for it to decline. Bethlehem began a course in supervisory safety training in the fall of 1962. This training was designed to provide instruction on supervisory safety responsibilities and activities to all Bethlehem supervisors. During the two-year instruction period, and for some months thereafter, there was a marked and steady decline in Bethlehem's disabling injury frequency. Then, however, the injury experience curve started up again. We had to know whether and how the accident prevention tools were being used, and to change their use where necessary. A procedure was developed to study and determine the extent and method of application of the accident prevention tools. This procedure was based on the use of check sheet forms. We

decided to refer to the procedure as an audit. In November 1965 the first safety audit was made; we've continued them ever since.

First, we studied one of our large steel plants with many departments and large numbers of employees. We decided that auditing there would be on a departmental basis. Our reasoning was that to audit an entire plant would require an enormous amount of time and personnel.

Departments are selected for audit based upon a review of the accident rate of all departments in the plant. The department with the highest OSHA lost workday incidence rate is selected for review. Incidentally, as we extended the program to include all of our operations, we found that in smaller operations audits can be made of an entire plant's safety program. However, since the audit team organization varies with the scope of the audit, I will describe the one we follow on a steel plant departmental audit. Five people make up each audit team. There are two operating superintendents or assistant superintendents from two other operations, two safety engineers, and a representative from the home office Safety and Workmen's Compensation Division. Whenever possible, the two superintendents or assistants are from departments which have similar production activity as the department being audited. For example, if a steel-making department is to be audited, the operating personnel on the audit team come from steelmaking departments in other plants.

The time required to audit a department varies, depending on the department. The audit team meets the evening before the start of the audit, and the home office representative explains the purpose of the audit and the procedures to the other audit team members.

On the morning of the first day, the audit team meets first with the general manager of the operation and then with the superintendent of the department to be audited. Again, the purpose of the audit is explained. The audit team is there to assist the department in determining weaknesses that may exist in the safety program. The team is not on a witch hunt. The procedures are also reviewed and any special arrangements

required are also discussed.

Following the meeting with the department superintendent, the audit team familiarizes itself with the departmental organization. The team learns which supervisors have an unusually large number of men to supervise. The audit team familiarizes itself with the accident problem areas by analyzing a sufficient number of accident reports. They determine which positions are producing the highest number of injuries. The team also studies the length of service for injured employees, to determine if a lack of training is one of the problems.

Using the check sheets, each accident prevention tool is studied to determine if the tool is being used as frequently as required and in the manner required. Four check sheets were developed for this purpose. Each deals with one or more of the accident prevention tools in Bethlehem's safety program.

To secure the information needed to complete the check sheets, the audit team must study the safety activity records of the department as well as interview hourly-rated employees and all levels of supervision. When all check sheets are completed, the audit team has a good picture of how each tool is being used.

The check sheet for accident investigation establishes whether every accident is being investigated and whether the investigation is complete in all required details. The accident description is reviewed to assure that it is clear and complete and that all causes—both man and environmental—are being found and reported. Finally, the committee determines whether proper actions are being taken to eliminate the accident causes.

The check sheet on job safety analysis permits the audit team to determine whether a job safety analysis existed for the job prior to the injury. If a high proportion of injuries occurred on jobs without analysis, it indicates that an adequate number of jobs have been analyzed. Using the check sheet, the team also determines the quality of the job safety analyses that have been prepared. By reviewing a representative sample of job safety analyses, the team determines whether these meet all the requirements for a good J.S.A. The team also determines whether the J.S.A.'s are used for

employee training and job planning.

The check sheet for job safety training reveals the frequency of personal contact and group meetings. Departmental records should show the dates of every employee's planned personal contacts as well as the subjects on which he was contacted. The quality of the safety contacts are checked by interviewing a number of employees selected at random. Employees are asked to recall a recent personal contact and, if they do, how much knowledge they have retained of the subject matter.

A fourth check sheet determines the adequacy of the planned safety observation program and the inspection program. From this check sheet the audit team determines if supervisors are conducting planned safety observations. Supervisors are required to observe men at work to determine if they are doing the job according to safe job procedures. The team also determines from the record whether supervisors are recognizing the need for reobservation where men are not working in accordance with safe procedures. And, if the supervisors are recognizing the need, whether they are making their reobservations promptly. The audit team also makes job observations, using job safety analyses, to determine if the jobs are being worked as set forth on the job safety analyses. Discussions with employees gives the team an opportunity to determine the employee's knowledge of hazards on the jobs and their knowledge of how to avoid the hazards.

Each first-line supervisor should have and use a safety inspection checklist for his area of responsibility. The checklist should be specific for that area. The audit team determines whether or not each supervisor has such an inspection checklist and whether the lists are adequate. The audit team also checks for an adequate procedure to insure correction of reported unsafe conditions.

The audit team also makes a physical inspection and notes any unsafe conditions, unsafe practices, and poor housekeeping in the final report.

Most of the audit is concerned with the accident prevention activities of the first-line supervisors in the department. The audit procedure is also designed to determine whether higher departmental supervision is carrying out its responsibility

ties in the accident prevention program. In general, the activities of higher supervision are to direct, guide, and control the accident prevention activities of the first-line supervisors.

After the audit team has collected all available information concerning the safety program, a written report is completed before the group leaves the operation. This report lists the findings and recommendations of the audit team for each of the safety program tools and includes the unsafe acts and conditions observed by the audit team. The report is reviewed and discussed with the head of the department which was audited and members of his staff. Thereafter, the audit team and the department head meet with the manager of the operation to discuss their findings and recommendations. That completes the audit team's job. Action on the audit is the decision of the manager and department head.

After a number of these audits had been made, it became apparent that the same weaknesses in the program were common to most of the audited departments. These were then made known to all operations, so that each could check their procedures and correct them where necessary.

Auditing has been effective for Bethlehem. After almost ten years, there is a very noticeable improvement in the proper use of our accident prevention tools.

In addition to auditing by corporate audit teams, two other types of audits are now in use. These we call internal audits. In one, the manager of an operation names an audit team of operating and safety personnel to audit a department in the operation. In the other type, a department head selects an audit team from his supervisors to audit a section of his department. The mechanics of auditing are the same for each type of audit.

As I mentioned earlier, auditing was started as the result of an unexpected rise in disabling injury frequency. From the beginning of the audit program, there has been a consistent decline in disabling injury frequency.

An unexpected but welcome by-product of the program has been the education and motivation of the operating personnel on the audit teams. They have learned a great deal about the proper use of the

they see how their own programs can be improved and return to their own plant with ideas and changes for their safety programs.

accident prevention tools. The opportunity to spend one week on safety is in itself an education and an inspiration. After a week of searching for weaknesses in other peoples' accident prevention efforts,

76 1718

DROPPING CUPOLA BOTTOM DOORS

By GARY LOVESTED
Safety Representative, Deere & Co., Moline, IL

A cupola is a hollow, cylindrical, vertical shaft furnace supported by legs and/or structural crossmembers. The bed, bed coke, and charges are supported by two hinged semi-circular bottom doors which are swung into the closed position and supported by one or more steel props.

The number of props used depends upon the design of the bottom doors as well as the procedure used for raising them. Generally, one bottom door has a lip which overlaps and supports the edge of the other bottom door so that it is possible, particularly on smaller cupolas, to use one prop if both doors are lifted nearly simultaneously or in the right order.

Large cupolas generally employ at least three props—one in the center located just behind the lip which supports the second door in the closed position; the other props are equipped with lead screws, and they are placed under the lip of the door. The screws are then tightened to force the door up into the fully closed position before the center prop is put into place and wedged. The center prop should always be strong enough to support the weight of the bottom doors, bed, bed coke, and charge materials even though the screw props are most often left in position as an added safety measure during operation.

The floor beneath the cupola should be kept dry to minimize instantaneous steam generation when the bottom is dropped. Therefore, it is desirable if the floor beneath the cupola is at an elevation slightly higher than adjacent floor surfaces. This is usually done by building up the floor surface immediately beneath the cupola with sand or other aggregate which provides a permeable media through which steam and other gases, but not metal, can readily pass. The sand or aggregate need not be bone dry, but should contain no more than five percent

moisture. Many foundries use cast iron slabs on top of the cupola footing as the primary floor, and then cover these with quantities of sand. There is no single acceptable method of floor preparation other than to make sure that the drop zone is dry and vented.

When the heat is completed, the cupola blower is shut off and the safety tyure opened. All molten metal and slag is drained from the cupola and both the tap hole and slag hole are left open.

Each of the outside auxiliary props should be removed individually. This can be done by loosening the screws or tapping the bottom end of the prop to get it out of vertical alignment. The prop can then be manually removed to a location remote from the drop zone. Caution: Care should be taken not to disturb the center prop in any way.

After the outside props are removed, the center prop is the sole means of support of the bottom doors and the remaining material in the cupola. A chain, cable, or other device should be fastened to or wrapped around the lower one-quarter to one-third of the center prop. Another chain, cable, or hook should be connected and run to a remote location where it can be pulled manually or by mechanical means, depending upon the size of the cupola, and afford protection to the person operating the device.

The area around the cupola should be cleared of all personnel. The chain, cable, or hook is then pulled firmly, and for a sufficient distance, so that it is free of the bottom. As it is pulled, the last remaining support for the doors is removed and they will quickly fly open, and all material remaining in the cupola will fall to the floor. The drop is then usually wetted down with water to extinguish and cool all of the material that has fallen.

76 1719

Metals Sessions

FIRST AID TRAINING IN THE METALS INDUSTRY? IT'S EASY-AND SMART!

By EDWARD E. KELLY
Senior Safety Eng., Inland Steel Co., East Chicago, IN

Close on the heels of the beginnings of safety in industry—as we know it—came the slogans and safety committees. Then came first aid training. To many, first aid training seemed somewhat negative. That is, it showed us what to do after an employee was injured. Efforts to prevent the accident seemed to get lost somewhere.

Generations later, a group of legislators brought forth the OSHA Act in which we were told to provide a safe workplace, even though many organizations in the metals industry were among the safest in the country. It soon became apparent that our efforts to prevent accidents were not lost.

Subpart K of the Occupational Safety and Health Act, Part 1910.161, "Medical Services and First Aid," has received a lot of attention. Citations have been issued for failing to comply with the requirements.

Whether you think you are in compliance with Subpart K or not, read the OSHA Act and check with your insurance carrier, safety consultant, or the U.S. Department of Labor to find out.

If you do not already have it, you may now decide to institute first aid training in your company. There are two reasons for doing so. First, the OSHA Act requires it. Second, it's smart. It can be another tool in your accident prevention efforts.

Inland Steel Company has had a successful First Aid Training Program for years. It was not instituted because of any "requirement" but in recognition of the fact that first aid training is an excellent tool in accident prevention. The program also became a fine asset in regard to off-the-job safety programs.

Here's how Inland Steel's First Aid Training Program works.

Every spring, each department head selects one or several of his own workers to become a departmental instructor for the year. The employee selected may be a

trainee, a supervisor, a department safety trainer, or an hourly employee—anyone who can represent the department and instruct employees within his department. All training given is done on company time. At least ten per cent of the employees are trained each year.

Since 1938, the U.S. Bureau of Mines has conducted or collaborated in the training of the selected instructors. Prior arrangements must be made with the Bureau. Recently, the training and education functions of the Bureau of Mines have been incorporated in the Mining Enforcement and Safety Administration (MESA).

Inland's training is moderated by the senior safety engineer and the MESA training officer. It follows a handbook titled *Modified First Aid*, published by Inland, and is based on the First Aid Methods Course developed by the U.S. Bureau of Mines. Following is a brief description of what the course covers.

Artificial Respiration. Three methods are taught: (1) the Holger-Nielson (back-pressure, arm-lift) method; (2) the Schaffer method (prone-pressure); and (3) the mouth-to-mouth method.

The company makes liberal use of a training mannequin, "Resusci-Anne." Short related movies are shown and the oxygen inhalator is demonstrated. The closed-chest cardiac massage method is also demonstrated. There is a device on "Resusci-Anne" which enables use of the model for this demonstration.

Control of Bleeding. Exercises are held in digital-pressure and direct-pressure methods to control bleeding. Instruction is given in the use of the tourniquet, but the emphasis is on direct-pressure. Simple bandaging is practiced by all students, using four-inch, non-sterile, practice bandages provided for the training.

No medication is given or splinting of any injury done by plant personnel. Only emergency vehicle drivers or medical per-

sonnel may apply the pneumatic-type splint when they arrive on the accident scene.

Treatment of Physical Shock. Treatment is merely position and warmth, coupled with emphasis on the awareness of the importance of the phenomena of shock. No medication is given.

Transportation of the Injured. The methods of lifting and moving a seriously injured patient by means of blankets and commercial stretchers are demonstrated and drilled. Considerable emphasis is given to the discipline of not moving an injured person at all until directed to do so by medical personnel.

Thus, the aim in industrial first aid can be summarized as "get 'em breathing, stop their bleeding, carry 'em right if you have to."

Oxygen inhalators; blankets; stretchers (army type and basket type); first aid kits (with tourniquets and four-inch sterile compresses only); self-contained breathing apparatus; rescue equipment of block and tackle; ropes and harness,

safety cables, bars, hammers, and wedges; bulletin boards; and emergency phones are provided in hundreds of locations throughout the plant.

In all training, references are made to the unsafe acts or conditions that caused the "injury" being treated in the classroom. Thus, lessons in safety are constantly used in relation to the first aid training. There are instances where employees, with only instruction in modified first aid, have been able to save the lives of members of their families or of their neighbors—a fine contribution to the community.

Obviously, there are many types, sizes, and needs of programs and companies. The services available to you from MESA and the American Red Cross should not be overlooked. In almost every instance you can adapt the training to the needs of your plant and be able to satisfy the requirements of OSHA.

Remember, first aid training is practical, it's good business, and it's a fine part of a safety program.

Above all—it's smart!

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