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## 60th NATIONAL SAFETY CONGRESS

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## **SAFETY IN PERSPECTIVE**

By ROBERT E. ROSE  
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During the past decade the accelerated rate and impact of change in our society have been awesome--sometimes frightening. In the area of industrial safety alone, we have come all the way from what many regarded as near total apathy to the status of a national social and political concern. The pressure of this concern upon government brought about the passage of the Occupational Safety and Health Act of 1970, an act which many regard as one of the most revolutionary pieces of Federal legislation in our industrial history.

There are others far better qualified than I to speak directly about OSHA; how we live with it; its impact upon business and industry; the history of its evolution; the enforcement process; the legal challenges to its constitutionality; and so on. I don't intend to encroach into their areas of expertise.

I do have some thoughts which I would like to discuss briefly. They take the form to some extent of reflections on the whole subject of industrial safety. I think it's timely that we do this since OSHA has, in a sense, dramatically altered our frame of reference. We have passed through the opening rounds of OSHA. Those who are charged with its administration and we in industry are both now in the process of adjusting ourselves to it.

Some of the things I want to say might best be said not to you, but to your managements. You are the people directly and primarily charged with the responsibility of guiding management into providing safe working conditions for our employees, and developing the employees into safety-conscious individuals with safe working habits. You are the professionals. You conceive the ideas; you put together the promotional programs; you structure and present the training programs; you attempt to educate and motivate atten-

tion to safety with upper management, on one hand, and the cleanup man on the factory floor on the other. Without support and cooperation from both ends of the spectrum, your efforts are not going to be very productive.

But these things you know.

I'm sure that most of you have had the experience of recording for management's attention an unsafe piece of equipment, or the lack of a guard rail, or improper tagging of electrical devices, or other hazardous conditions or practices; and later wondered when a serious injury occurred, why management had ignored your recommendations for corrective actions. I think it is hypocritical and untrue to say, as some of us sometimes do, that safety and all related accident and fire prevention activities are our number one concern in running the business. Perhaps when we say it we mean it, but as a practical matter, since safety is one of a number of concerns that a manager is faced with, priorities will be established on the basis of staff advice and managerial judgment.

I do not mean to infer that management crassly ignores safety of its employees or its property. I mean simply that in the total scheme of things, running a business is a highly complex, demanding task, comprised of multiple concerns and pressures, of which safety represents only one. Safety as a functional responsibility represents an integral part of the process. But it is not the only part. As important as it is, safety cannot receive the constant, undivided attention of management.

It is an important consideration in running a business, but it's not the only one. If we do the optimum job of considering and acting upon all safety demands and recommendations--even those under OSHA--

we still will not eliminate every hazard. We still will not make every employee meticulously safe in the performance of his job. As with most other business matters, the most we can hope to do is to achieve a good balance for our time, talents and resources in the interest of safety.

Now let's take a look at safety from this perspective.

What do we really mean by industrial safety? What do we mean by safe working environment? Safe workers? What is the real end objective of safety—by definition? Are safety statistics—frequency rates, severity rates, and all of this—really valid? Do they have any meaning? Why do we bother with such things as safety awards? What's the purpose of them? Do they really accomplish anything or have any meaning?

In my company and yours, we have a safety policy statement. Ours reads like this: "The management of Rayonier considers no phase of operation or administration as being of greater importance than accident prevention." This policy pronouncement hangs framed on office, conference room, plant, and warehouse walls throughout the company. Does this have any value? Is it simply lip service as a self-serving protective device?

Or look at it another way. Do we really care who is hurt or killed or even how many, so long as our numbers record looks good in relation to our competitors; and we have a chance to beam with pride for the camera when we receive the trophy for having the best safety record?

I don't mean to be cynical when I raise these questions, nor do I intend them simply as rhetorical questions, although I do not really intend to attempt to answer them. In reflecting upon them, or even answering them in your own time, in your own way, you perhaps may rediscover for yourselves some meaningful values.

But let's look at safety from still another angle.

What about the value of safety and of you as safety practitioners? Apart from overriding considerations of the physical safety of the individual, what are the values of safety to business and industry? Again, you are the professionals and you know the answers to

this much better than I. But it seems to me that an examination of this question might be worthwhile in terms of developing a clearer understanding of your position as the safety professionals and the role you must productively play.

You know, of course, about the importance of full time productive work, particularly in a continuous process industry such as the pulp and paper industry. We are all aware that accidents are costly. They are costly in terms of production losses; in terms of insurance costs; especially irksome in terms of impact upon workmen's compensation. Along with this, obviously, accidents, whether fatal or otherwise, are costly in a human sense. So what do you as the people directly charged with the responsibility for maintenance of safety really mean to the company? Who are the safety men and what should they be? Are you some meaningless abstractions—such as "protectors of life and property?" Are you merely guardians of winning records? Well, you are many things, and far too many for me to cover in entirety at this time. But I want to suggest one thing, which you perhaps hear all too infrequently, if ever. You are part of the company's operating, profit making organization; responsible for honest-to-God contributions to the profitability, and, therefore, continuing operation of the business. You are not simply necessary appendages to the corporate structure to support a facade of compliance with the law.

I want to suggest two considerations pertinent to industrial safety in today's world.

First, who is responsible for industrial safety—and let's look at that question completely apart from OSHA. I am sure it is obvious to all of you that the full responsibility for safety in business and industry—the burden of enforcement, the penalties for failure—is based solely upon the employer by OSHA. But my question really has nothing to do with that. What I am asking is, "within the framework of the business and industrial organization, who is responsible for safety?"

From a functional standpoint, you are the experts. You understand the requirements; you point out what needs to be done, or what shouldn't be done; you design the requirements for a safe working environment and

safe equipment; you prescribe safe methods in the utilization of human resources. All of these things and more you can do, and you do well. But is safety in a meaningful sense really your responsibility? I don't think so.

I have seen and heard so many times over the years such things as "safety is everybody's responsibility." Well, this has a nice sound. In a sense, it's true; but by itself, it's meaningless and non-productive. It needs a kicker. I think the responsibility for safety in industry belongs to management. We can have all the things that I ran through at the beginning of my remarks—design specifications, work regulations, safety signs and slogans, contests, training, and safe practices. All of these are useful and helpful and necessary. But unless you have your responsible management at all levels "in" on the act—committing to safety in a meaningful way—you are not likely to achieve great things.

Apart from such things as training policies and allocation of resources in the interest of safety, management from the top down must set the tone for safety if attention to safety is to be meaningful. This was dramatically demonstrated this past year in the largest subsidiary of our company. Again, I am not going to bother you with numbers. All I will say is that we had a lousy safety record. We had an inordinate number of employees suffering injuries and lost time, and all the resultant consequences. About one year ago we appointed a new president and chief executive officer. I don't really think he did very much. He didn't have to. But what he did was simple, direct and effective. He simply laid it on the line to his staff—to those reporting directly to him—that he didn't intend to tolerate a continuation of this kind of record. From that time on, each and everyone on his staff would be held personally responsible and accountable for safety in his functional area. Well, I don't know what his staff members said to those below them, but I know that in less than one year's time we had a dramatic turn-around in safety. So dramatic in fact, it is almost unbelievable in some instances. For example, two of our logging camps came up with a zero frequency record for a full year. I could cite other instances in my company of the impact that a division

manager can make upon safety performance in his operation. They weren't quite as dramatic as the one I mentioned, but they were effective and important.

I think I should make it clear that I am not suggesting that any of you be relieved in any sense from your safety responsibilities. What I am really saying is that if you don't have the top slice of your management in back of you, you had better mount a campaign to get them there if you really want to achieve any degree of success in your safety efforts. It's a responsibility that has too often been shirked by management.

But now we have OSHA. And that leads me to my second suggestion.

It has been the role of business to resist the encroachment of government into the private domain. I hope we continue in that role. In doing so, we are helping to moderate extreme swings to either end of the political spectrum in our government. Most of us, I think, want our government to be pretty much in the center politically, rather than the extreme right or the extreme left. I like to think that business has a hand in keeping us there. Moderation, I believe, is important.

But I think that resisting legislation and influencing the form in which it ultimately emerges is one thing; attitudes and reactions towards enacted legislation is something else. I am sure that OSHA, in its present form, the regulations and codes issued to implement it, perhaps the administration or the administrative process in connection with it, have generated many serious problems for industry. Even so, I have the feeling that many of us grossly over-react to the law. The reaction of the construction industry is the subject of an article in a recent issue of *Engineering News-Record*. I am only going to make one "quote" from it and that is a short one. It's listed as a contractor's comments on OSHA and its rules. "OSHA is another case of political switch from complete apathy to instant overkill."

I am reminded of labor's reaction to the Taft-Hartley Act. I am sure you recall it. The leaders of organized labor thundered from every podium that this is a slave labor law; it means the death of organized labor; and so on, and on, and on. Then came the Land-

rum-Griffin Bill for protection of the rank and file union members, and we heard more of the same. Well, I don't know about your companies, but I can assure you that we have no slave labor in our operations. I can assure you that the labor unions which represent our employees are not supine, weak, powerless organizations.

So, what about OSHA? Was OSHA needed? Is it necessary? As far as I am concerned those are questions for the students and the scholars. In a realistic sense, as far as we in industry are concerned, they are academic questions. OSHA is here. It is a reality and we are going to live with it. Maybe we will not just live with it. We may even benefit from it. OSHA is still new. It may be modified. It appears it will be tested in court. It will evolve as other administrative laws evolve. But it is not likely to be repealed. So, I think we had better be directing our attention to helping to make it work.

Does the impetus of OSHA mean that we are going to eliminate industrial accidents? Of course not. No more than we are going to eliminate non-industrial accidents. Kids are going to continue to run and fall out of trees and break a leg or arm. We are going to continue to design and construct imperfectly because we are imperfect creatures. But we

are going to do better. We are going to improve our industrial safety performance, and I believe at an accelerated pace. Under the spur of OSHA, we are going to be doing some of the things that we should have done on our own. You who are our experts, our professionals, in industrial safety, are going to lead the way.

What then is the meaning of safety? What is our objective concerning safety? Isn't what we are really after simply the protection of people from bodily harm and death by accident, the elimination of industrial accidents?

The ultimate goal may well be beyond our reach, but there have been fantastic changes in the industrial environment since the commencement of the industrial revolution. We have come a long way from the sweat shop of Dickens' day to today's protective working conditions. We must have continuing dedication towards the objective of safety. We must use statistics; but we should never lose sight of the fact that statistics at best serve as only indicators, as measurements of performance. They suggest to us how well or how poorly we are doing. They must never in a real sense obscure the real objective of freedom from accidental injury to people and property.

## AN INSURER'S VIEW OF OSHA

By MARVIN W. PEARSON

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No rational person could dispute the basic objectives of the Occupational Safety and Health Act. One just can't quarrel with such noble purposes as: encouraging employers and employees in their efforts to reduce the number of occupational safety and health hazards in the work environment; promoting research in the field of occupational safety and health; exploring ways to discover latent occupational diseases and establishing causal connections between diseases and conditions in the work environment; and providing for the development and promulgation of occupational safety and health standards.

All thinking men both in management and in labor, must agree that legislation designed to accomplish such objectives as these is a significant forward step in the continuing effort to "defuse" the safety and health hazards within our tremendously complex industrial process.

As is to be expected, however, the implementation of the Occupational Safety and Health Act has produced reverberations which will continue to echo through industrial U.S.A. for a long time to come—for the Act also has great social and economic implications.

OSHA thrust a monumental task upon the U. S. Department of Labor, but a more objective look at the Department's performance reveals a pretty good track record. They have had a bad press, caused partly by unscrupulous promoters who have used scare tactics to capitalize on the Act. Much hysteria that has accompanied the Act was and is not justified. Most of the penalties that have been assessed have been nominal—certainly not nearly as costly as has been suggested by those attempting to sell OSHA compliance materials through scare techniques. The average penalty proposed, but not necessarily paid, has

been \$70 (based upon 32,700 inspections).

The insurance industry has been attempting to accomplish the major purposes of OSHA for many decades. While we are firmly behind the Act's basic intent, we do take exception to certain aspects of its interpretation and administration, which is certainly to be expected. Individual opinions within our industry also vary as to what are considered good and bad features of OSHA, and this is also an expected result of individual, professional thinking.

My discussion will concentrate upon certain aspects of OSHA where we feel most qualified to comment. For example, the findings of the National Commission on State Workmen's Compensation Laws, the development and interpretation of standards, record keeping requirements, occupational safety and health research, and OSHA's effect upon safety professionalism.

### *National Commission on State Workmen's Compensation Laws*

This commission recently sent its findings and recommendations to the President and to Congress. The Commission was established by the 1970 Occupational Safety and Health Act and was appointed by the President in June of that year. Their mandate from Congress was "To make an objective evaluation of the state workmen's compensation laws to determine whether they provide an adequate, prompt, and equitable system of compensation for work-related injuries and deaths." After a year-long study the Commission concluded that the state laws generally fail the adequacy and equity tests. But they rejected a federal take-over of the system, in favor of an improved and more equitable state-administered system.

In its report, the Commission led off by

citing a list of general objectives that a modern workmen's compensation program should attain:

1. Broad coverage of employees and of work-related injuries and diseases. Protection should be extended to as many workers as feasible and to all work-related injuries and diseases.
2. Substantial protection against interruption of income. A high proportion of a disabled worker's lost earnings should be replaced by workmen's compensation benefits.
3. Provision of sufficient medical care and rehabilitation services. The injured worker's physical condition and earning capacity should be promptly restored.
4. Encouragement of safety. Economic incentives in the program should reduce the number of work-related injuries and diseases.
5. An effective system for delivery of the program's benefits and services.

The Commission's report then proceeded to outline specific improvements in the compensation laws that were necessary, in its judgment, to accomplish the previously described objectives. The Commission included in its report an estimate of the costs required to adopt its recommendations. Presently, the national average cost of workmen's compensation is roughly one per cent of payroll. In 31 states, the average cost is less than one per cent. In five states, the average is between one and 1.5 per cent. Costs to bring the states up to the Commission's recommended minimum benefit level are estimated as follows: four states—less than 10 per cent increase; 20 states—10 to 30 per cent increase; 21 states—30 to 50 per cent increase; five states—over 50 per cent increase. One expert has been quoted as saying that even after the state systems are brought up to the recommended level, the average cost would generally be less than what a company spends on coffee breaks!

It appears obvious, however, that OSHA will not necessarily bring about reduced workmen's compensation costs, as some have predicted. It would seem that any cost reduction achieved through reduced injury costs will be more than offset by cost increases necessitated in bringing the state systems up to

the benefit level recommended by the Commission.

#### *Development and Application of Safety Standards*

There are those who believe that control of environmental factors is the primary concern in injury control, while others put all the emphasis upon behavioral and psychological factors. The National Commission on State Workmen's Compensation Laws spoke to this point as follows: "The engineering approach to the prevention of occupational injuries has made great contributions to safety and will no doubt continue to be of primary importance. Research on human factors and motivation, however, will contribute to the prevention of work-related injuries."

This is significant as we now turn to the application and interpretation of safety standards, which spell out minimum acceptable conditions in a measurable way. Plato once said: "If from any craft you subtract the element of numbering, measuring and weighing, the remainder will be almost negligible."

Certainly the greater development and application of new and better safety standards by safety people will increase the stature of the safety profession, and it will also bring faster results. Our company, since its origin, has utilized underwriting standards which incorporate the key points of many safety standards and are probably the forerunners of many of today's standards.

Underwriting standards have guided us in the conduct of our business, but they have also helped to guide our policyholders in their loss control efforts, since the standards reflect our understanding of the major sources of injury and loss in various industries. The standards were evolved as we learned—sometimes through bitter experience—about the most serious exposures commonly encountered in specific classes of industry.

Standards are valuable in that they help people to differentiate between and communicate about what is safe and what is unsafe. This has been a long-existing problem in the safety profession because the safety professional, with his greater experience and knowledge, would judge something unsafe which was not judged to be a hazard by the line supervisor. The latter would base his

opinion on the fact that the exposure had been in existence for many years without causing injury. The safety professional, on the other hand, bases his opinion on much broader experience or is guided by a safety standard. The supervisor fails to see any potential for maiming or killing because his experience is limited to a single operation, rather than to the industry as a whole.

I have personally been told many times by managers or supervisors that a particular unsafe condition "is of no real concern because it's existed for years and has never caused an injury." Yet industry-wide experience has told me the condition is of serious concern because it has contributed to many severe injuries and occasional fatalities.

The universal application of standards and, even more, the understanding and application of standards by line supervision, will be one of the most significant contributions toward a safer work environment that will come out of OSHA in the immediate future.

Our company has long participated in the development of consensus standards such as ANSI and NFPA standards, as well as state safety standards, through involvement of many of our consultants and specialists in the development process. We expect to continue this important work in the future.

There has been much adverse comment on the standards issued by the Department of Labor following OSHA's enactment. Some of the comment is justified; some is not. It must first be considered that the Department was given an almost impossible deadline for the writing of its standards; thus it is understandable why they are not all in apple pie order. Some of the "shoulds" were changed to "shall" when they should have remained "should." Some obsolete and outmoded standards were adopted; others were changed impulsively or on the basis of mere whim; well thought out statements were hastily rephrased so that they failed to express the intent of the authors. The Department is well aware of these flaws and is embarked upon the time-consuming work of correcting them.

The small businessman needs help in learning what standards are applicable to his operations and what specific requirements he

must meet for compliance. He has been served a mixture of horizontal and vertical standards by the Department of Labor, all of which were written by safety professionals after much deliberation. They were put together in a single volume and thrust upon the businessman abruptly, with the requirement that he interpret the whole bundle and apply it to his operation.

The Department is aware of this problem and has set out to collate for the businessman those parts of standards most applicable to his particular industry. This would provide him, in effect, with mini-vertical standards. This will be of great help to those attempting to gear up for OSHA, but it should be understood that it will probably not absolve an employer of responsibility for compliance with all other requirements of the Act.

An extremely critical need for all is to establish priorities for compliance with safety standards. An employer is presently hard put to know where to begin his compliance efforts. He doesn't know how to differentiate between his minor and his major deficiencies. Promoters in the private sector have added to the confusion by proclaiming that their product "meets or exceeds OSHA requirements." A good example of misplaced injury control priorities is found in the great emphasis that came to be placed on the use of compressed air immediately following OSHA's mobilization. This illustrates how a relatively minor exposure can be pushed to the forefront and given emphasis that is all but out of proportion.

We have long been firm believers in the need for meeting standards on a basis of sound priorities, bringing the most severe and frequently encountered exposures up to standard requirements first. Without a logical system of priorities, much time and money can be spent on relatively minor exposures while major ones go unattended, leaving your most severe sources of injury without controls.

Speaking of priorities, back in the early 60's, in an effort to help guide our policyholders in developing logical loss control priorities, we began shaping a computerized system for collecting large volumes of data on injury costs and causes. Upon analyzing our accumulated data we found that 67 per cent

of all injuries account for only six per cent of total injury costs—and these we called the "trivial many." More importantly, we learned that 33 per cent of all injuries account for 94 per cent of total injury costs—and these we called the "vital few." With these early discoveries, we were well on our way toward developing our "vital few" approach to loss control.

We then drew summaries from our computers which classified our data by industry type, accident type, injury type, agency, and body part involved. We found that in practically every type of industry studied we could identify a vital few—usually three to five—injury causes that accounted for 50 to 75 per cent of total injury costs. And these vital few consistently proved to be severe injuries, related to repetitive hazards, created by normal work processes.

We now have injury cause—cost data on nearly half a million injuries, amounting to nearly half a billion dollars in total costs. Published results of these studies under a format we call our "Technical Guides" provide policyholders with a valuable set of priorities, for they pinpoint the exposures that are the source of the most severe injuries occurring in their industry.

One important aspect of standards that needs emphasis is participation in their development by all members of industry. If your industry wants practical, workable standards, then it should become deeply involved in the standards development process. All of us should sell our management on the need to allocate funds and people for the development of sound standards. If we default on this and permit or force the government agencies to write all our safety standards, we will have no one but ourselves to blame for impractical or inconsistent standards. Only through broad, committed industrial participation will we have the quality standards that achieve the true intent behind the Occupational Safety and Health Act.

The importance of standards cannot be overemphasized. Vince Lombardi once said: "Rate your personnel according to standards. We expect our offensive tackles to block 65 per cent on the run, 85 per cent on

the pass." Only through the application of sound standards can we truly measure the extent of our exposures and gauge our level of accomplishment.

#### *Record Keeping Requirements*

There has been great controversy over OSHA's record-keeping requirements. Changes in the requirements are apparently on the way, to reduce the burden placed on the small businessman, and this is as it should be. The National Commission on State Workmen's Compensation Laws recommended that "... a standard workmen's compensation reporting system be devised which will mesh with the forms required by the Occupational Safety and Health Act and permit the exchange of information among federal and state safety agencies and state workmen's compensation agencies."

Implementation of this recommendation would mean that completion of a single report would meet the requirements of the state workmen's compensation as well as the federal and state safety organizations. It would also make available useful data both to those involved in injury reduction and those responsible for establishing workmen's compensation insurance rates. Furthermore, all states and industries would be using the same criteria for calculating injury rates for their work force.

Our company has been working on the development of a single form for reporting injuries to the workmen's compensation regulatory bodies as well as to the various state and federal safety agencies. I understand that presently the workmen's compensation commissions of approximately one-third of the states have approved a form which meets both their requirements and those of OSHA.

We wholeheartedly support the National Commission's recommendations that injury statistics more adequately portray the conditions and problems of specific industries, rather than lump industries into broad classifications. Our findings with the "vital few" approach I previously described have convinced us that the collection of injury statistics can be far more rewarding than it has been in the past.

#### *Safety and Health Research*

The research activities authorized by OSHA will undoubtedly lead to a new era in occupational health. Federal government involvement will help to establish national criteria for exposure to known hazardous materials. It will also promote research that will bring us more knowledge about suspected toxic materials, and perhaps about the toxicity of some materials thought today to be harmless.

Sampling and analytical methods should move rapidly toward uniformity under the national law. This will provide more reliable data in that all researchers and practitioners will be relating to the same techniques of collection and analysis.

The medical examinations now required for workers exposed to suspected toxic materials will help us learn more rapidly about the deleterious effects of such materials, and will lead to better protection against them. More money and resources will undoubtedly be spent on occupational health exposures than in the past.

The development of heat stress criteria will usher in a new era of worker health. Granted, more time is required for the development and testing of the criteria, but we are under way toward new engineering controls for minimizing this exposure.

#### *Safety Professionalism*

Now that there is a federal law and a large federal organization concerned with occupational safety and health, it is more important than ever for private industry to maintain and strengthen its expertise, to reinforce its ranks of safety practitioners and researchers. The National Safety Council, the American Society of Safety Engineers—these are our logical vehicles for action, and they are now faced with a greater challenge and a greater potential than ever before!

Vigorous and independent thinking is the vital requirement if we are going to rise to the occasion, both within our private companies and through our professional associations. We must have significant inputs from all segments of industry, in both quality and magnitude such as we have never seen before! The challenge was well stated by National

Safety Council President Howard Pyle when he said, "There is no real substitute for the effectiveness of the voluntary safety movement for those who participate. Unfortunately, not all have participated. . . . The voluntary process is *not* dead. Voluntary compliance and the pursuit of excellence in safety above and beyond the minimum requirements under the law are very much alive and well—and rewarding for those who are willing to accept the opportunities involved."

Health competition between the private and federal sectors can do nothing but further the cause of occupational safety. Such competition has gone on for years between the U. S. Department of Agriculture and the private and industrial hybrid producers, and the result has been better professional thinking and a remarkable increase in the productivity of our land. Competition between the U. S. Army Corps of Engineers and private construction has been longstanding—and it has sometimes erupted into bitter struggle. Yet no participant would deny that such vigorous competition has furthered the knowledge of the building profession, along with the professional development of its members.

Passage of the Occupational Safety and Health Act has been heralded by many as the most significant legislation since the passage of laws dealing with the minimum wage and Social Security. The effect upon American industry has been direct and profound, and it will be years before the full impact can even begin to be measured.

Reactions to the Act have been widely varied, from the position that it is unconstitutional, or that "OSHA" is serving us nothing but old wine in new skins," to the positive conviction that an employer should go all out to meet his OSHA obligations.

Whether we believe that there is old or new wine—or just plain vinegar—in OSHA, whether we believe that the Act is constitutional or unconstitutional, whether we have negative or positive feelings—or a mixture of both—about the matter, we'll be realistic if we agree that it is necessary and wise to embark upon a long term, priority-oriented commitment to meet the requirements

of the Act. Because OSHA is now one of the facts of life, along with death and IRS.

The basic intent of OSHA is right, undeniably right. So it is up to all of us in private industry to give out with our professional

best, through individual, company, and association effort, to help translate the intent into solid reality and to help get the job done in the most prompt, practical, and efficient way possible.

## PRESENTATION OF ARTHUR HOYT SCOTT AWARD

By JAMES F. GAYLORD

Vice President, Industrial Relations, Scott Paper Co., Philadelphia, Pa.

It gives me great personal pleasure to present the Arthur Hoyt Scott Award to the Crown Zellerbach Corporation in recognition of its outstanding safety accomplishments in the year 1971. So that you will appreciate at the outset what a marvelous accomplishment this was, let me tell you that Crown's 1971 record, with 47 units which worked 33 1/2 million man-hours reporting, was an overall frequency of 3.31, which represents an outstanding reduction from their five-year average of 4.41.

As there are undoubtedly many of you who did not know Clair Lyon, who for many years was "Mr. Safety" of Scott Paper Company until his untimely death in 1961, I would like to tell you why he was so interested in having Scott sponsor this award initially, almost 20 years ago. Because of Clair's experiences at Scott, he was acutely aware of the special problems of managing a safety program in a multi-plant company and the great importance of corporate leadership in such an effort. However, until that time there was little public recognition of the overall safety accomplishments of large corporations, as almost all recognition focused on a plant-by-plant basis. He conceived of this Award, therefore, to fill this gap, and we at Scott have been proud to present it each year since 1953. Our only regret is that to date Scott Paper has never won the award, although on several occasions we have come close. I will put all of you on notice that we are making a strong bid in 1972 which just may bring us in on top this year.

Reviewing the National Safety Council's 1972 work injury rates publication, the pulp and paper industry's 1971 frequency rate of 8.53 compared favorably with the 1971 all-industry average frequency rate of 9.37. However, the severity rate for our industry compares very badly with the all-industry average severity rate, and the average days

charged per case in the pulp and paper industry is 94 compared with an all-industry average of 65 days.

Perhaps the most perplexing and disturbing information regarding our industry's safety performance came from studying the historical tables of frequency rates in our industry: Our industry has not had a significant improvement in our industry frequency since 1954, when the frequency dropped to 7.21 from 9.54. Prior to that time our industry figures improved steadily each year, but from a 7.21 frequency in 1954, we are back to an 8.53 frequency 18 years later, and only four of the intervening years bested the 7.21 of 1954. This, then, would appear to be a major challenge facing you as safety experts at this point, and I'm certain that there exists here the know-how, the desire, and the drive necessary to provide the impetus to return an annually reducing frequency again to our industry.

Some of the elements which Crown Zellerbach has told us were strong contributors to its safety effort are:

First and foremost, they have a clear and concise statement of policy and accountability for safety which makes clear that everyone on the payroll has a part to play in their safety effort, and this policy is communicated widely.

Second, they have set a goal for the ultimate elimination of all injuries. They have put real teeth into their objectives and policies by including the safety performance of the areas of managers and supervisors as criteria when evaluating the performance of these managers and supervisors whenever they are being considered for salary increases, promotions, and transfers.

Finally, they have established programs and procedures which recognize that "the total involvement necessary to a successful, effective safety program cannot be fully

achieved without the recognition, cooperation, and support of the employee and the labor organization to which he belongs."

It seems to me that Crown has set guidelines here against which it would be well to judge any of our individual corporate programs.

The corporation which came in second place in this year's contest is ITT Rayonier, Incorporated, the 1969 winner of the Award.

Olinkraft, Incorporated a three-time winner of the award since 1965, placed third this

year.

As usual, the 1971 contest was based on four separate measures of achievement: the 1971 frequency rate, the 1967-71 average frequency rate, the percentage improvement of 1971 over 1970, and the percentage improvement of 1971 over 1967-71 average. With these criteria, it was a remarkable achievement for Olinkraft to come out this high in the contest with the excellent performance past they had to start from.

## PRESENTATION OF PIMA AWARD

By GREG TUTTLE

PIMA is vitally interested in supporting the wonderful work of the National Safety Council. We provide publicity to 10,000 pulp and paper industry readers of our magazine, *American Paper Industry*.

PIMA's interest in safety can be traced back for 53 years. The annual PIMA Safety Awards are a continuation of the Edward Benton Fritz Memorial Trophy. Through these past three score years there has been an increased interest in safety in our industry. The number of contestants in the Paper Industry Safety Contest has increased from 135 to 786.

We all know this year marks the threshold of a new era in industrial safety. You people have been dedicated to safety objectives long before safety by government edict was brought on the scene. In many quarters I, a former safety supervisor, have observed beneficial effects from OSHA. More and more we see chief executives accepting responsibility for safety; the same is true of all levels of management.

Last year at this session the most eloquent words came extemporaneously from M. H. Collet, president of Olinkraft: "Safety comes first." We need more "Mr. Collets." Had we had enough of them in American industry we would not have inherited OSHA. I have participated in a number of OSHA seminars in New England, New York, Ohio, Louisiana, and Illinois. The OSHA representatives ap-

pear to be really dedicated, as you are! Industry management people have become increasingly interested in the welfare of their employees. Your contributions to industry are being recognized more than in the past. Congratulations!

The paper industry management association is extremely interested in promoting industrial safety and does so by encouraging our 11 divisions to continually sponsor safety sessions at their local conferences and also encourage participation in the activities of the National Safety Council. At our national management conference this past June, our safety session was a highlight of the business sessions.

In cooperation with the National Safety Council, PIMA presents two awards annually—one to the pulp and paper manufacturing concern and one to the converting operation which have achieved the best safety records during the previous year.

The first, to the pulp and paper manufacturing plant, goes to the P.H. Glatfelter Co. of Spring Grove, Pennsylvania. From Sept. 30, 1971 to July 31, 1972 this plant has accumulated 2,235,311 injury-free manhours.

The other award, to the converting operation, goes to the Olinkraft Standard Bag Plant 40 of West Monroe, La. This plant has accumulated 3,953,140 injury-free manhours from Feb. 24, 1965 to July 31, 1972.

## GET ON THE BALL OR GO TO JAIL

By J. M. POMERANTZ

Senior Safety Representative, United States Fidelity and Guaranty Co.,  
Jacksonville, Fla.

Every professional is concerned with the use of knowledge and the achievement of objectives: the engineer as he designs equipment, the medical practitioner as he diagnoses and prescribes for the ills of his patients, the lawyer or the architect as he serves his clients. The professional draws upon knowledge and science of his colleagues, upon knowledge gained through personal experience.

Progress in any profession is associated with the ability to predict and control. Successful safety management depends—not alone, but significantly—upon the ability to predict and control human behavior. In literally thousands of ways we predict with a high degree of accuracy what others will do, and we control their behavior in the sense that our actions lead to the desired consequences. The professional need not be a scientist, but he must be sophisticated enough to make competent use of scientific knowledge. Many human acts rest on assumptions, generalizations, and hypotheses—we call this theory. These assumptions are frequently implicit, sometimes quite unconscious, and often conflict with what is actually being done. The common practice of proceeding without thorough examination of these theories has led to change in human behavior and has resulted in accidents and/or injuries.

Science concerns itself with the advancement of knowledge; safety should concern itself with the achievement of practical objectives. Knowledge in the various sciences is not sparse but does not take into consideration interpretation of that knowledge by personal experience and control in the field of human behavior. In engineering, control is adjustment to natural law. We cannot make nature do our bidding. For example, we don't dig ditches hoping water will flow uphill nor

do we use kerosene to put out a fire. In many cases we attempt to control human behavior in direct violation of human nature. We try to make people behave as we wish, forgetting that we have to deal with people as they are.

If all safety people were put in jail for a reasonable period of time, through enforced idleness they would have to take searching stock of themselves, which could make the good ones better and the others quit to find other employment or find the means to improve. The best way to become better is to get together with others who are willing to share their experiences, problems, ideas, opinions, and viewpoints. The fact that you are here is evidence that you are interested in and willing to support the progress of your profession. This is one of the hallmarks of a dynamic and progressive profession.

I now say, "Safety people should be put in jail!" If there were a law enforcement officer present, he would probably say, "What are you, some kind of kook, or are you some kind of nut? Don't you know you just can't put people in jail because you think it necessary?" You have to charge them and the indictment may look like this:

1. You are more nice than men.
2. You suffer from mental constipation.
3. You need a little less give and a lot more get.

Under Indictment 1 it seems that apology has become part of your every day tool kit. A man can be courteous and considerate in presenting his proposition, but does not need to be apologetic for trying to get top management attention and taking an active part in the safety program. We may have picked up this sort of meekness from isolated sections of the ministerial group—where saving souls is attempted by more pleading than praying. You and I know that the preacher who packs

his church on Wednesday night not only lays salvation on the line but means it. It is about time we started to lay money saving on the line and mean it. Management is interested in safety as well as many other things. You cannot reach the heart of a lot of people through the breast when it ain't there, not when they carry it in their pocketbook. Like us, they do first what they feel is most important. Private organizations are in business to make money, and safety people have to make accidents and injuries fit into the profit-making picture.

The fire of a safety program begins with the flame of need. The fuel for the fire is continued need to maintain accident control through supervisory people. Our function as safety people is to control the flow of fuel by the assistance and support we give to supervisory people.

The man of power and success is the one who wrings success out of the stony heart of defeat. Defeated men are the only ones who succeed—read history—because defeat means the disapproval of the mediocre, and the enmity of the chuckleheaded. The man of power is what he is, and his personality makes itself felt wherever he goes. He does not show his true colors until he has rid himself of allowing friendship to influence his thinking. Success doesn't come to those who wait—and it doesn't wait for anyone to come to it.

We have become so used to hearing "no" that we have forgotten what "yes" sounds like; therefore the time has come to go into the front office with the idea that "no" is not the accepted answer—the more we figure out how we can get "yes" answers, the more "yes" answers we will get. Another road block to getting management commitments might be the fact that, over the years, we have intended to treat symptoms instead of causes. It may be hard to admit, but accidents and injuries are only symptoms, the result of operational errors. With each, we should try to determine the error that allowed it in the first place, and its effect on profits. He who loses money loses much; he who loses a friend loses more; but he who loses courage loses all. Today, we need more courage in our dealings with management.

Did you ever stop to think that few safety people get to be top managers? The reason is simple; they get so wrapped up in what they are doing that they forget the profit motive. Have you ever thought of profit and loss? As long as you are willing to work for "chicken-feed," the rest of the world will continue to let you. It is a better idea to improve your products or services, then you have the right to seek more money—and probably get it. While ten men watch "chances" one man makes "chances." While ten men wait for something to "turn up" one man "turns something up." So, while ten men "fail" one succeeds, and is called a man of "luck," the favorite of fortune. There is no luck like "pluck" and fortune favors most those who are most indifferent to fortune. "Chicken-feed" service will get "chicken-feed" pay.

Under Indictment 2 a recent examination of selling motivating methods show that you are trying to sell today's safety on twenty year ago ideas. Injury report after injury report, loss report after loss report, shows attempts to plug holes in your program, every time a new hole in a new place—but not once did you ever tell management that they had a hole in their profit program by not taking an active part. Sounds silly, doesn't it? It is an even bet that management thinks you have a hole in your head.

How can we obtain top management's support? We can stop preaching and start analyzing. Stop wringing your hands and start shaking the bushes. Let's put our safety fire into the management framework and give some direction to the program. The program is a planned routine devoted to loss control which every organization needs. This may be a big job, but a big job is only a lot of little jobs put together in a neat package. Nature has given us two ears, two eyes, and but one tongue, to the end we should hear and see more than we speak. We should be listening, instead of talking so we can take advantage of the constructive safety suggestions of others. Each day brings us the petty round of irritating concerns and duties. We hear just anything we prepare for and nothing else. The lesson to the learned is that safety comes from within us, since we must depend upon our own resources and expe-

rience plus that which we can learn from others. Everything that happens is a sequence: this happened today because you did that yesterday.

Through incentive plans we attempt to control behavior, thinking that people want money and will work harder to get it. Actually, we need to realize that the average worker can and will outwit any system of control, whereas had we used some form of recognition then no attempt would have been made to get around the system of controls. Recognition should be given to periods of time with no work related injury, given in the presence of their fellow-workers. Most people would rather have the approval of the people they work with than an increase in pay to get this approval. Incentive programs that include recognition generally create favorable attitudes.

So many miserable mistakes, and all can be cured. Woe to the sensitive and gentle in their safety life. Provocation, irritation, vacillation, accusation, every phase of malice and every note of harshness—prejudices, jealousies, strife, hate and confusion. Every phase of ill from doing nothing to doing something—all of these have very often cursed the tranquility of each safety man's daily labors.

Some people will never learn anything, because they understand everything too soon. Be up-to-date. The time has gone by when past success is considered an element of strength. In this day and age, experience counts for far less than it formerly did. This is an age of great progress, of rapid gains. Experience is not needed so much as is the courage to break away from old methods.

"More time!" is the usual exclamation, even by those who have all the time there is. They should bethink themselves about "more method," or else waste less time. Now is the time for constructive thinking, and the following will help obtain top management support:

1. We need a policy statement from top management. If your company has no policy, then write down what you think it should be. This is a starting point; remember that fire begins with little sparks.
2. We need to establish goals. Goals mean

successful programs. He is not the best carpenter that makes the most chips. Let's be realistic about the goal, leave dreams to day-dreamers, and take a hardheaded approach to what should and could be accomplished in a measurable period of time.

3. We need to establish responsibility and accountability for the loss prevention effort to succeed or make progress. A man who does not avail himself of modern methods is right at the outset giving himself a handicap not easily overcome.

4. We need meaningful reports along economic lines; use dollar signs. Half-doing is many a man's undoing. Why not compose your report in terms of dollars? What dollar volume of business is necessary to offset the cost of a specific accident? Necessity sharpens industry. Necessity is a hard nurse, but raises strong children. In fact, any report in dollar signs "gets through to" top management.

5. We need to put the package before top management and try to involve them in safety. Good management is better than good income. Top management wants the company to get recognition in the business world and being a good competitor, they should be in the forefront of the safety activities. Better to be doing than wishing it had been done.

Safety motivation requires goal setting followed up by learning the safety way to live. Caution is the parent of safety. Learn as if you would live forever; live as if you would die tomorrow. All men are born to be goal seekers and strivers. When they are without purpose and direction, they are dissatisfied and discontented. Safety and production should, like the scales of a true balance, always present a mutual adjustment. We are reminded there is no true safety without discipline and never sacrifice the truth.

Under Indictment 3 for the past twenty years the accident and loss picture has gotten worse, and the average person might say, "Safety people should be put in jail." What would that accomplish?

We must make a start to change the attitude and awareness of people—this should be a determined, unified effort to inform the public of our position and interpretation of the means to improve the safety picture. This should be based on "Tell it like it is." The

tide of opportunity is running with us—therefore "No small plans; think big." Safety is not a dirty word, nor should it be limited to a few key people. It must be accepted every day, by everyone, every way, and at all times.

The noblest of all forms of government is self-government, but it is the most difficult. Apparently, self-government in the field of safety has not produced results, so government has legislated safety and health. The misfortune of those who are advocating prohibitory laws, whether they are to be applied to Sunday or weekday usages, is that in their zeal for good results, they fail to take into consideration that others do not look at it under a microscope nor as far reaching.

In these days of progress when that which we yesterday extolled to the skies is today quietly pushed aside, the only cry which pleases the heart is "Forward!" No matter to what branch of safety one may devote his attention, something superior, something new, something hitherto unequal must be evolved, or the outcome of thought and labor will be abortive. Top management will go along with things that return a bit more than a dollar for every dollar spent. They do want to participate in profit programs.

Mankind goes ahead but slowly, and goes ahead mainly through each of us trying to do the best that is in him, and to do it in the safest way. Men can write perfect ethical systems, but nevertheless they cannot stand being watched when performing that system. Men who can be relied upon are always in demand. The scarcest thing in the world is a thoroughly reliable man.

When people respond in undesired ways, normal response is to blame them. It is their stupidity or their uncooperativeness or their laziness which is used as the explanation for what happened, rather than our failure to select the best means to effectively control human behavior. At times we are so busy trying to persuade top management to issue orders because we feel that people ought to be told what to do. True, the problem is "out there," and that is where we should have

gone to seek their cooperation in evaluating and determining logical and practical means of improving the accidental injury picture. Human behavior becomes predictable when human beings become part of the decision making, help recognize human fallacies, and help to organize and direct the actions of other workers. Blaming people for failure to behave according to what we thought has never produced results, whereas seeking their involvement and decision making usually produces results beyond our expectations.

There is a past which is gone forever; but there is a future which is still our own. Management's freedom to manage has been progressively curtailed in our society during the past century. Legislation with respect to child labor, the employment of women, workmen's compensation, collective bargaining, and today's new safety laws reflects society's concern. One approach to these problems has been to look on them as unreasonable and to fight blindly against them. The other approach is to become sensitive to human values and be aware of "social responsibility" as well as thinking in terms of economic responsibility whose objective is profit. The history of social legislation has shown that society allows freedom of movement, provided human values are preserved and protected. Professions like medicine, education, and law, in general, maintain high ethical standards where people are concerned. Safety people are in a similar position when guiding and directing the human resources of an organization. Anything, any institution, or anyone not well enough put together to stand the racket of Life should and probably would be put in jail. Here the price of freedom is responsibility, and like anywhere else, the safety man's failure to effectively and properly shoulder that responsibility should lead to the loss of freedom.

Remember I said, "Every challenge is an opportunity and every opportunity is a privilege." Far and away, the best prize that life offers is the chance to work hard at work worth doing. Again I say, "Get on the ball, or go to jail."

## A PLAN FOR COMPLIANCE

By J. A. CASH

Coordinator of Safety, International Paper Company, New York, N. Y.

In only 22 months "OSHA" has become a household word in commerce and industry. I doubt seriously that there is a single industrial employer who is not well aware of the existence and purpose of "OSHA" although I'm sure that OSHA could provide a list as long as your arm of those who stood in wide-eyed innocence and denied ever having heard the word before the compliance officer presented his credentials.

Unable to disclaim its existence, we at International Paper have all begun to work toward compliance with OSHA. However, our Camden, Arkansas mill decided to go beyond just trying and instead work within a systematic approach to assure their eventual compliance. My purpose here is to highlight for you the basics of that approach.

The Camden, Arkansas mill is a typical industrial kraft and semi-bleached grades mill which produces approximately 690 tons per day. The mill, originally built in 1927, now operates three machines fed by a continuous digester and has all the standard support facilities for a fully self-contained plant. It employs just under 800 people and is operated on the continuous four shift method, down only for the regular holidays and an occasional emergency outage.

Like all the rest of us, they too began to consider what they must do to comply with the requirements so simply stated in the Department of Labor OSHA poster. "Providing a place of work free from recognized hazards that might cause serious injury and to comply with the specific safety and health standards issued by the Labor Department" doesn't sound like such a tough job. That is, not until you begin to read the specific safety and health standards.

It isn't until you begin to wade through the May 29, 1971, issue of the *Federal Register* that you begin to realize the enormity of the task. This document with its 249 pages of text and

references presents a career of reading materials. The result of the combining in total or in part of over a hundred codes and standards, it requires intensive study to fathom its depth and breadth. Actually, sections D through S reference over 90 standards, and our particular industry paragraph, 1910.261, incorporates 30 standards in total and includes three more for consideration.

Faced with the vast amount of material contained in the Act to be read and understood, coupled with the requirement for a boundless knowledge of both the manufacturing processes and the supportive operations, it was felt by Camden's mill management that this was just more than the one safety staff member could expediently manage. For this reason, it was decided that the Act and its many references must be broken down into workable size doses.

To help accomplish this, the mill manager assigned a senior project engineer as coordinator of the standard cost group to serve as chairman of the OSHA compliance activity. The other half of the planning team was the safety director, who already had an on-going, full scale safety program throughout the mill including inspections, investigations, and education along with health, sanitation, and medical activities.

The plan devised was a fairly simple one designed to bring as many people as possible into the program, thus promoting the theme that OSHA compliance is the responsibility of everyone in the management team. First, all of the available American National Standards referenced in the Act and especially in the Pulp, Paper and Paperboard section were gathered together and indexed much in the way recommended by the American National Standards Institute. Also catalogued were the other referenced codes and standards, such as National Fire Protection Association, American Society of Mechanical En-

gineers handbooks, etc.

With these many standards, codes, and the *Federal Register*, the Camden plan began to take shape. Such a plan, designed to provide detailed application of the Act, obviously required some type of form upon which to develop those details. The form developed, designed for broad use, provided identification for the object or area of the mill to be covered, references showing the subpart and its name, the section of the Act, page where found in the Act, any other reference data and, lastly, space for the text of the standard and other details.

Utilizing this form, subpart R's section 1910.261 for pulp, paper and paperboard mills was analyzed paragraph by paragraph until every paragraph of the Pulp, Paper and Paperboard section of the Act was covered by a detailed extraction or standard sheet. Detail sheets vary in complexity and may be as simple as a single paragraph regarding the steel hoops on acid storage tanks or they may be such as to require several pages. The one on industrial power trucks covers six pages.

After the entire section 1910.261 had been analyzed in this manner the detail sheets were assembled into one book in the same order as they appeared in the act. The book was titled, "The Camden Mill Safety Manual."

To make the job of auditing a single department or area simpler, copies of the detail sheets were also assembled into groupings as they would apply to the various departments or areas. These groupings were then bound and identified as to the department or area to which they were pertinent. For the Camden mill these departmental groupings numbered only six in total. These specific area manuals were then distributed to the department heads for the various areas to serve as their own departmental or area safety standards manual.

With the issuance of these manuals, the job of attaining compliance became the direct responsibility of the area superintendent with the safety director and the OSHA compliance chairman serving in the staff or advisory capacity. The mill management realized that these two staffers could not adequately serve the entire management group as con-

sultants for two reasons: First, timewise it would not fit in with all their other responsibilities; second, they did not, even between them, enjoy all the practical and technical knowledge felt necessary to do the job the way management wanted it done. Looking about for additional expertise, it took only a glance to recognize that such was readily available within the management group. The only question was how to get them into harness. Camden found the way.

By dividing the Act into its various subparts it was found that many individuals within the management team had considerable knowledge in at least one or more sections or subparts. To this end, those people were identified and then recruited by the mill manager to serve as the consultant for that particular portion of the Act where his knowledge stood forth. These specialists were dubbed subpart safety supervisors.

Obviously, the subpart supervisor for subpart "O" on machinery and machine guarding came from maintenance, while the one covering the subpart on electrical came from that department. Technical furnished the expertise needed for the environmental and chemically related parts. Each recruit was then furnished with the necessary reading materials plus the needed encouragement to become the in-house subpart expert. Thus the scope and depth of the OSHA consultant staff was greatly expanded.

The manual for these subpart specialists included the subpart of the Act for which they were individually responsible plus the pertinent detail sheets from the mill manual. For instance, the manual covering subpart "O", Machinery and Machine Guarding, included the twenty-four pages from the Act on subpart "O" as well as 46 detail sheets where guards are mentioned in the paper industry section.

While the area or departmental superintendent is responsible for his department, the subpart supervisor has joint responsibility on detail matters involving his particular specialty or subpart. The subpart supervisor is expected to approach each departmental superintendent and aid him in finding the deficiencies in that area. While a supervisor may be a subpart supervisor, he may very well

also be a departmental superintendent wherein he may have to pull in double harness.

With the department safety supervisor and the subpart safety supervisor ready, this brings us to the point of the actual audit. Obviously, when the audit is made and substandard conditions are found, if they are to be corrected then they must somehow be recorded. To assure not only uniformity in the manner in which the violations are written but to also provide sufficient control data, a form was also developed for this purpose.

Since the form is used to point up deficiencies in our safety standard compliance status, this is what it was called—the Safety Deficiency Report. After the deficiencies have been detected by either routine or formal audits they are recorded on this form. Completed in multiple copies, the form carries all the information needed to facilitate correction. It names the department responsible for the condition, ownership so to speak, and the date that it was noted. The subpart portion in this form shows two things: (1) the subpart violated, e.g., machinery and machine guarding; (2) the item in need of corrective action, e.g., a barguard needed on the winch rider roll.

After these deficiency reports are written, the department safety supervisor meets with the safety director to discuss the problems and the solutions. The date of this discussion is entered on the report. Jointly, the two take the matter up with the appropriate staff manager for his approval of their plan of action. The date of this meeting is recorded.

Once approved, the department safety supervisor prepares our standard work order covering each individual item. The work order number is entered on the deficiency report and a copy provided the safety director. All approved work orders under this program have OSHA emblazoned across the top to assure proper attention.

At this point, the department safety supervisor separates the deficiency reports into three categories of priority, "A," "B" & "C." Those marked "A" are, of course, the first to receive attention. An index is prepared of the deficiencies by letter grouping and descending order of importance and furnished

to the maintenance planning group. At the weekly maintenance planning meeting a report is made by the planning group denoting the status of the work orders. To assure that a fair share of the compliance work is provided for each department, planning keeps a bar chart depicting the departmental accumulations.

The safety director maintains a work order status file book on compliance jobs which provides not only control data but also documents their intent and efforts toward the abatement of sub-standard conditions.

Obviously, there is still a great deal of work left in this plan for the safety director. Details such as doing follow-up checks on what has been done and to assure that it has been done in a manner that will meet the standards of the Act or its reference codes. Likewise, he must spend much time looking at the substandard conditions found to assure that whatever action is planned meets the minimum standards set forth by the Act and still stays within the budgetary allowances as much as possible. Serving as a referee between the area safety supervisors during the maintenance planning sessions to help decide whose top priority job must take precedence over another is not an easy task. He must many times display not only the wisdom of Solomon but the hide of a rhinoceros.

Though the safety director is called upon to check and sometimes double check corrections, mediate priority disputes, record progress or lack of progress on the abatement of the sub-standard conditions, he is not left to do the whole job alone. Within this plan I'm sure you have seen over and over that compliance with the Occupational Safety and Health Act as outlined, in the poster is not something allocated to the safety director and left totally to his time, talents, persuasiveness, sweat, and tears for accomplishment. Instead, the plan for compliance places the responsibility on many, promoting the idea that the safety and health of the employees of the Camden mill is everybody's business.

Already many trade associations are developing or have developed compliance survey materials which are available to you; at least one of them within our own industry.

gions are adapting it to their woods operations.

While we are very proud of the plan and all of the work that went into it, we realize fully that it is not a perfect plan nor is it the only way to get the compliance job done. However you may elect to work it, we very strongly advise that any job as all-encompassing and tremendously detailed as getting into compliance with the Occupational Safety and Health Act can only be achieved by a systematic attack on the problem.

Simple stated, there just must be a plan for compliance.

Also, the National Safety Council has released a system of check list materials for going over operations in general and will release specific materials on paragraph 1910.261 for pulp, paper, and paperboard mills in the near future. Insurance carriers, publishing houses, and consulting services likewise are getting into the act in providing such materials with or without the personnel to perform such surveys.

The Camden mill is proud of their plan for compliance. The entire Southern Kraft Division is now striving to have each of the other ten mills adopt the same or very similar programs. Likewise, the Division's woodland re-

## WAREHOUSE FIRE PROTECTION

By C. W. SCHIRMER, President  
Schirmer Engineering Corporation, Niles, Illinois

When does warehouse fire protection begin? Or to put it another way, when does warehouse fire protection become a matter of corporate concern?

The answer all too often is "after the loss."

One wonders, why should this be? Is the technical knowledge and skill not available to engineer the fire protection? Has the hardware not been developed to provide the protection? Is the cost of protection prohibitive? Are there no incentives to the owner to provide protection? Is there no need for the protection?

The answer to these questions is, of course, "No!" But perhaps we had better say a qualified "no" to some of them and examine them further.

No need for warehouse fire protection? A resounding "no" to that question. One need only review the NFPA 1971 "Fires and Fire Losses (classified)" Tables to answer that question. In 1971, there were 1,400 fires in printing plants reported to the NFPA. Losses from these were \$5,300,000. Storage occupancies reported 11,100 fires and losses of \$131,800,000. These storage occupancies include all except farm buildings, petroleum plants, residential garages, grain elevators, and lumber and building material storage. This represents a 3.8 per cent increase in the number of storage occupancy fires over 1970.

While the figures alone are enough to point the need for fire protection, they should be examined closer. It must be recognized that the NFPA fire loss records show only a small percentage of actual total number of fires. It is common that small fire losses, for example those below insurance deductibles, are not reported. Therefore, many losses in fully protected properties are not included in the statistics. Adding these occurrences would, I am sure, give a much higher figure for total number of fires without materially increasing the dollar loss statistics. It is,

therefore, somewhat paradoxical that the very fact that many warehouses are fire protected tends to distort the loss records to indicate a lesser need for protection than is actually the case.

If the need for fire protection can be so clearly demonstrated, then is the protection not possible? The hardware not available? The technical skill not developed? Again, the answer is no. I can proudly say that fire protection techniques have been able to keep pace with warehousing methods no matter how sophisticated or exotic these warehousing operations have become. In most cases this has been accomplished by merely applying sound fire protection engineering principles and design of protection systems employing currently marketed hardware.

The best example of this method is the design of automatic sprinkler protection. I don't want to oversimplify this and much of the engineering has to be backed up with research. Most notable of such research projects directly affecting warehousing has been the "Rack Storage Fire Protection Committee" work. This committee, representing rack manufacturers, the fire protection equipment field, industrial users, and the insurance community, was organized in 1967. To date, through the efforts of this committee, over \$1 million has been invested in the research program conducted at Factory Mutual Research Center, West Gloucester, Rhode Island. This research program has included large scale fire testing enabling the NFPA committee, with a great degree of certainty, to publish the Rack Storage of Materials Standard in 1971 (NFPA 231C) for storage up to 25 feet high. Testing is continuing, and 231C was revised in 1972; however, still applying to 25 foot storage. Within the next year or two, this will be expanded to include up to 50 feet or higher. Fifty feet is the physical limit in testing in the existing test facil-

ities. As an outgrowth of the promulgation of 231C, the NFPA General Indoor Storage Standard, NFPA 231 was completely revised in 1972. I will have more to say about these standards when we consider protection cost a little later on.

Recent years have seen the introduction of new hardware with applications in warehousing. New hardware has included such things as high expansion foam, special application sprinklers, water additives, new detection devices, and new coatings for steel protection. I am sure that these devices have not yet been used for their full potential, just as I am sure that the next few years will see the addition of many more new products. Recent emphasis based on fire protection as a result of OSHA and the National Commission on Fire Prevention and Control will do nothing but hasten the development of new hardware, and give the needed publicity to the field of fire protection and safety engineering. With the added interest, we hopefully will be able to obtain enough qualified people in these fields to apply the expertise and engineering skills needed to go along with modern technology. One would have to say today that there are too few qualified people in these fields to serve industry, as it should be served. Unfortunately, many times fire protection design is turned over to people who have interest in other than pure engineered protection.

If the need is, therefore, demonstrable and the hardware and expertise is available for warehouse fire protection, then one must assume that lack of protection is due to prohibitive costs and/or lack of incentives for industry to protect. In other words, we get down to the basic questions which must ultimately be answered: "How much does it cost?" "What's in it for me?" To answer these questions, we should first consider typical reasons for warehouse fire protection. These generally are one or a combination of (1) insurance underwriting requirements, (2) building or fire prevention code requirements, (3) management concern for property and business interruption losses (total physical damage losses in the United States in building fires in 1971 was \$2,226,000,000), (4) management concern for life safety (total fire deaths in the

United States in 1971 were 11,850).\*

As a fire protection engineer, I would like to be able to say that industry provides protection to safeguard lives, or at least to say that they voluntarily provide protection in the interest of both life and property protection. But as we all know, much of what is provided in the way of protection is required protection—requirements of code and/or insurance authorities.

What does the owner get if he puts in the required protection? Well, the code authorities will permit him to build his building or continue to operate his business in the manner he desires. The insurance authorities will provide coverage, usually at a lower rate.

What does he get if he provides protection voluntarily? Perhaps nothing more than peace of mind. All of this at a relatively high cost.

What then, is the answer to providing practical engineered fire protection at reasonable costs? The answer is in the question—engineering.

Most of today's fire protection is based on historic standards of both code bodies and the National Fire Protection Association. While these standards are good, they are presently for the most part not true consensus standards, nor are they performance standards. The past two years have seen steps taken in the right direction to correct some of the standards, by broadening the base of standard making committees to include the cross sectional representation needed for a consensus standard. Work is also being done on transforming these standards to a performance basis to permit engineered protection. This is a monumental task which is far from complete and, not surprisingly, is being resisted by many sectors. In order for a standard to be the viable instrument it should be, it must have been prepared with all users in mind. In terms of warehouse fire protection standards, it must include the interests of the insurance authorities, the industry, the worker, and general public health and safety. The standard also must be so written that it encourages the creative innovative thinking neces-

\* These latter two items approximate low due to crime in this country in 1971. Are fire and crime receiving the same attention?

sary to permit the application of fire protection engineering to new warehousing problems.

It should be recognized that whenever the word engineering is used, it by the very name connotes cost considerations. There should be no reason why a standard or code should require fire protection whose costs are unreasonable in proportion to the potential loss. By the same token, standards and codes should not prohibit innovative cost saving fire protection schemes when the goals of public health and safety and property protection are being satisfied.

Earlier I referred to two NFPA standards which I believe have taken the right steps in the standard making process. These were NFPA 231 and NFPA 231C. As I mentioned, NFPA 231C was an entirely new standard, first published in 1971 and based upon a long continuing series of fire tests. At the outset of the testing program, it was agreed that the tests were not being conducted to substantiate previous concepts, but rather to investigate practical methods of providing protection for rack storage of materials. This approach resulted in some basic "fire protection facts" being overturned. For example, bulkheads or vertical barriers were found to be ineffective in pallet type racks.

Roof vents and draft curtains were found to be a confusing issue. Some of the tests produced advantageous results, but other tests gave extremely detrimental results. As a result, the design criteria called for in the ultimate standard assumed that roof vents and draft curtains would not be present in the building.

In preparing the standard itself, a considerable amount of concentrated effort was given to providing alternate means of protection rather than only a single solution to an individual problem. The words of wisdom have proven themselves time and again since the standard was adopted in May of 1971. One of the most important considerations to come out of the standard is the inherent ability to modernize existing warehouse protection without ripping out and starting over again. As an example, let us assume that we have an existing flat paper stock warehouse with materials stored on racks to a height of 18 feet.

The sprinkler system in this assumed building was installed in 1964 under the standards applicable at that time. It is an ordinary hazard system with 165° sprinklers spaced at 100 sq. ft. per sprinkler. The fire tests which were conducted as part of this program, as well as previous fire tests, have indicated conclusively that such a system will not protect combustible materials stored in racks at a height of 18 feet. Prior to the rack storage standard, there would have been no question but that the existing overhead sprinkler system had to be completely removed and replaced with a reinforced system requiring increased water supplies.

With the new standard, it is possible to hydraulically calculate the existing overhead system and determine the design density which is actually being produced, or in other words, the number of gallons per minute per square foot the system is capable of delivering over a particular area of application. This information can then be compared with an infinite number of design points found on the design curves available for this type storage, and the most economical solution can be arrived at. Perhaps the overhead system and the water supplies may be left completely "as is" and it will only be necessary to install sprinklers in the racks. On the other hand, perhaps these are portable racks and the installation of in-rack sprinklers is, therefore, impractical. Under these conditions, it may be possible to replace the existing 165° sprinklers with 286° sprinklers at the ceiling and install some additional cross mains to reinforce the overhead system to an acceptable design point. On the other hand, perhaps it will be necessary that in addition to the beefing up of the system a fire pump would be necessary.

The competent design engineer can review all of the various possibilities in providing advice as to the most economical and practical solutions available. This is in contrast to former standards which provide only one design point in a "go-no-go" situation. This is but one example of questions that the fire protection consultant is faced with every day. Other examples can be given for other methods of paper storage, including rolled paper stock, but the point stressed is that there are

normally alternate solutions to most fire protection problems, all of which should be explored.

Perhaps the best use of a standard is for new construction. Why must an owner be required to provide costly fireproofing of steel, and why must he be limited in his operations by providing costly and cumbersome fire wall separations to divide his plant into relatively small areas, when by the same token he has chosen to provide a sophisticated fire protection system that is capable of confining the fires to much smaller areas such as 3 or 4,000 sq. ft.? Why should the area of a noncombustible warehouse, for example, be limited to 50,000 sq. ft. when tests have demonstrated that the fires will be confined to a 4,000 sq. ft. area? What difference would it make if this building were 100,000 sq. ft. or, for that matter, unlimited? There must, of course, be limitations simply due to the fact that no protection system is foolproof, but these should be solely limited by the economic considerations resulting from a loss. That is to say, how much can this company afford to subject to one loss and how much would the insurance company be willing to underwrite as a result of one loss?

All too often, fire protection is simply looked on as something added. It is the last thing considered in the building design. The normal routine goes something like this: The company decides that it needs a new warehouse facility, calls in the plant layout and production people to determine the necessary size of the building facility. Warehouse system firms or consultants are asked to discuss the storage and material handling aspects. An architect is commissioned to design the structure. The architect will design the structure in accordance with local building codes. At this point, the insurance carrier may be brought into the picture and probably request the addition of automatic extinguishing systems, fire separations, and process controls beyond the building code requirements. After these features have been incorporated into the design, the local fire prevention authorities will quite often ask for additional protection in terms of fire hose stations, fire department access openings, perhaps roof

venting, draft curtains, or other add-on items.

We have now gone from a simple building structure whose only purpose was to provide a controlled environment for storage and to permit efficient operation of the warehouse to a building which has been gold plated with every conceivable "fire protection feature" that all of the various interest groups desired. It would not be unusual for all of this to have increased the building cost by 50 per cent or more. When management looks at this they are going to reach one conclusion: fire protection requirements have caused this increase and, therefore, fire protection costs are prohibitive.

What is wrong here, of course, is what we have been saying right along about the lack of consensus standards which enable fire protection to be incorporated into the building design rather than added on to building design. Is it, therefore, not possible for the owner to provide fire protection in today's world under existing codes and standards and yet at still a reasonable cost? The answer is, it is indeed possible but it does require something more than a passive management attitude regarding fire protection. Management simply can not leave fire protection decisions up to parties who have interests other than those of management.

What can the owner do then? He can look for an architect who has fire protection engineers on his staff. But I am afraid that at least today you have to look pretty hard and long in order to find one. What he must probably do is hire a fire protection consultant who owes no allegiance to anyone other than the owner. This consultant should be in at the very start of the project so that the fire protection can be incorporated into the design. This consultant must work closely with the companies in-house designers, but also must have close working relationships with the architect and other consultants on the project, as well as the insurance interest. This system approach to fire protection could be met with resistance somewhere along the line from the code authorities, the architects, and/or the insurance authorities, but it becomes the fire protection consulting engineer's job to act as the owner's representative in matters dealing

with fire protection and these bodies. It probably will mean some concessions on everyone's part, but with sound engineered design these normally can be handled with a minimum of red tape and without the necessity of formal variance proceedings and time delaying negotiations. From management's standpoint, once a decision is made to build a structure, everything from that point on is cash outflow, with no return on investment until this structure is in operation. Therefore, anything that the fire protection engineer can do to anticipate problems or forestall delays will probably result in enough time saving to pay the consultant's fee, not even considering the construction savings.

While we have been talking today of warehouse fire protection, which in the narrow sense means protection from physical damage to the fire, we never want to lose sight of broad loss control in the warehouse. This loss control would include, in addition to fire protection, fire prevention. We cannot simply build the warehouse facility and provide fire protection and think that our job is finished. This warehouse will be a living thing, and fire prevention must be considered in all aspects of the operation. We must consider the

people aspect. We can train and we can discipline our people in proper operating procedures for fire safety, but we must also plan that if people are involved, something will go wrong. So we must consider what the consequences of people error might be and how to protect against this.

As an example, we can formulate excellent operating instructions for lift truck operators, but we must face the consequences of what would happen when one day a lift truck driver runs out of fuel in the middle of the warehouse and decides to take the easy way out and refuel where he is stalled. When the fire starts, have the procedures been established for alerting the proper personnel, for evacuating the building when required, and for taking the necessary action without unnecessary risk?

We will not attempt to go into emergency plant organizations here but I did not want to close leaving the impression that all the problems were solved by incorporating fire protection design into the building structure alone. I don't know who the wise sage was who said, "All our problems are people," but this certainly also applies to fire protection for the warehouse.

## OSHA AND INDUSTRIAL HYGIENE

By JAMES GOMAS

Director, Safety & Hygiene, Chicago Tribune, Chicago, Ill.

Industrial hygiene is the science and art devoted to the recognition, evaluation, and control of environmental factors or stresses arising in or from the work place which may cause sickness, impaired health and well-being, or significant discomfort and inefficiency among the workers or among the citizens of the community. OSHA's concern about industrial hygiene is reflected in Subpart G where they adopted the Threshold Limit Values set forth by the American Conference of Governmental Industrial Hygienists as well as some of the ANSI standards.

We of the printing and publishing industry would be concerned with those items in Subpart G which might result from our printing, engraving, and plate-making processes. The various materials are too numerous to discuss herein; however, we would like to suggest a general plan to cope with these prospective problems.

The major difficulty encountered in our industry, as in all others, is recognition. Our company has adopted a policy requiring the receipt of Material Data Sheets for all solvents, materials, or powders which are likely to come into human contact. A portion of the data sheet requests information on toxicity, fire hazard, and appropriate first aid precautions. These items are extremely helpful in determining the relative hazards as well as

providing background information which may be disseminated to the employees.

After finding that something is potentially hazardous you should review the operation. If it appears likely that employees could contact the material in question either directly or via its becoming airborne, an industrial hygienist should be requested to evaluate and, if necessary, suggest appropriate control measures. Having the Material Data Sheet should make this job considerably less difficult.

Many insurance carriers have industrial hygienists on their staff and often provide industrial hygiene service to their policyholders. If you do not have access through your carrier, consultants are available for a daily fee.

In summary, we would recommend that you plan your actions. Obtain material data sheets, review the information, study the operation and, if doubt exists, obtain the services of an industrial hygienist. Many of the Occupational Health citations issued by OSHA have been deemed serious violations. As you all know, serious violations can carry a penalty of up to \$1,000. It behooves each of us to do all we can to insure our establishments are really safe and healthful work places.

## OSHA-AREA DIRECTOR

By EDWARD ESTKOWSKI

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The Occupational Safety and Health Act of 1970 has three distinct yet not totally related factors. First, of course, is the occupational safety and health function. Second is the establishment of a National Commission on State Workmen's Compensation Laws, and third is an amendment to the Federal Aviation Act of 1958 providing for the installation of emergency locator beacons on certain aircraft.

I shall concern myself with only the first factor, and within that factor more specifically to what is compliance.

OSHA has administratively recognized, as has the Congress, that compliance is largely dependent for successful accomplishment on massive voluntary effort; that between enactment of the Act's general duty provision, the promulgation of workplace standards, and the establishment of an administrative body lies a field of goals that cannot be adequately addressed by a massive OSHA surveillance force. Again, the Congress had made it perfectly clear in the Act's Findings and Purpose that the purpose of the Act can be accomplished only if a wide variety of entities and activities are effectively interfaced, adequately supported, and accurately aimed at the objectives of the Act.

To grasp the multi-faceted approach to compliance as envisioned by the 91st Congress, one needs to read no further than the first page of the Act. Perhaps a few excerpts would be helpful in understanding compliance as Congress viewed it: "by encouraging employers and employees in their efforts to reduce the number of occupational safety and health hazards at their places of employment and to institute new and . . . perfect existing programs for providing safe and healthful working conditions—by creating an Occupational Safety and Health Review Commission . . . carrying out adjudicatory functions—by building upon advances al-

ready made through employer and employee initiative—by providing research in the field of occupational safety and health, including psychological factors—conducting . . . research relating to health problems, in recognition of the fact that occupational health standards present problems often different from those involved in occupational safety—providing training programs—by encouraging the states to assume the fullest responsibilities for the administration and enforcement of their occupational safety and health laws by providing grants to the states—by encouraging joint labor-management efforts to reduce injuries and disease arising out of employment."

A thorough study of the records of floor debate, committee meetings, public hearings, and position papers would support the conclusion that our society supported the premise of occupational safety and health, recognized the costs of unmitigated accident and health frequency and severity rates, and yet bid strongly for local rather than national controls and administration.

To be sure, this Act, like many, many others, emerged as a compromise piece of legislation. It has, at one end of the spectrum a capability for pure police functions, and at the other end an enunciated desire, supported by a host of systems, for voluntary and cooperative effort by employers, employees, and governments.

If I have, in fact, properly identified the congressional definition of compliance, I have but started to satisfy the public's interest in the definition of the term. Certainly how an administration shall react to congressional intent, how employers and employees view their roles, how agencies of the federal government view their responsibilities, how federal agencies and state agencies see their roles, how much sincerity and dedication are demonstrated by any of the aforementioned

and, finally, how much continued interest and support the Congresses yet to come are willing to deliver, are all factors that will affect the definition of compliance at any given point in time.

We have experienced just under two years of compliance under the Occupational Safety and Health Act. In that period the evidence fairly supports some early observations that I would like to share with you. The public commitment to the basic premise of occupational safety and health has been reaffirmed. Employers and employees have made significant strides in unifying their efforts to achieve job safety and health. Agencies of the federal government have worked sincerely at coordinating their several safety activities to prevent unnecessary overlapping and confusion. State safety and health functionaries have realized a much closer cooperative effort with OSHA and HEW than may have been clear heretofore. The need for increased training efforts on the part of employers, employee groups, NIOSH, and OSHA is again quite clear.

The financial costs of compliance with the general study provisions of the Act as well as the standards promulgated under the Act may at times be high, but the costs of not complying, aside from any proposed penalties, may well be higher. There are other observations to be made, but I believe I have shared with you some of the more significant observations as they have emerged.

While we may not have had too much difficulty in agreeing on a definition of compliance, I'm afraid our efforts at defining what is reasonable and feasible compliance will generate considerable debate and perhaps some frustrations. The very words "reasonable" and "feasible" are judgment words. They allow for the massive use of our own frames of reference, formulated and modified by our own personal daily experiences and absorption of imposed impersonal factors. However, from a very early date OSHA has stated that a citation is an allegation of a violation. With that, OSHA said it would have the burden of proving its allegations and as part of that burden of proof would stand ready to show that its actions and allegations were not arbitrary or capricious.

At this point it should be indicated that the proofs are heard by a judge functioning within the rules of procedure adopted by the Review Commission, which of course, is an adjudicative body separate and apart from the Occupational Safety and Health Administration. The judge renders findings of fact and conclusions. Left unchallenged, these findings and conclusions are binding on the parties, and precedent is established. As the body of the unchallenged decisions grows, so will grow a greater definition of judgment terms.

There remain, however, two additional entities that will help define terms; the three person review commission hearing cases for itself and the Federal District Courts hearing cases on appeal. So in all we have five distinct opportunities for defining reasonable and feasible compliance; the safety specialist who makes the actual inspection, the area director who actually issues the citation alleging violations, the Review Commission judge, the Review Commission itself and, finally, the federal courts.

To lawyers accustomed to the ladder of appeals procedures the protection afforded the parties is of greater importance than having immutable definitions. However, to others, the desire to anticipate with some certainty is of great import in the management function. How then does management, the employer if you will, participate in the effort to establish a definition of compliance; compliance that is reasonable and feasible?

Traditionally, employers have participated in the development and promulgation of consensus standards. Employers have modified their machinery and processes to conform to the new standards and have therefore made practical tests of the reasonableness and feasibility of the standards. Where practical tests have shown adherence to a standard unreasonable, employers have suggested amendments to the standards or even repeal of a standard.

Within the adjudicative functions, employers have, by way of informal conference, which is much like a pre-trial conference, caused citations to be amended by showing that certain allegations and/or actions by OSHA were in fact unreasonable.

Further along the adjudicative processes, the employer is presented with additional opportunities to fashion the definition of reasonable compliance. I believe it fair to conclude that defining reasonable and feasible compliance is an extremely intricate lacework of many persons, entities, periods of so-

ciety, states of technological art, and public desires all working together constantly to achieve a common goal of a safe and healthful place of employment for every man and woman in this nation.

## HOW TO USE THE SAFETY MANUAL, AND TRAINING FOR FOREMEN

By CHARLES SHAPIRO

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Even before the first edition of your Safety Manual was completed, it was realized, back in 1953, that safety training of supervisors was sorely needed. Everyone recognized that, in the final analysis, front line management—the foreman, the lead hand, the crew chief, the key man, by whatever title you designated him or her—the front-line supervisor was ultimately responsible for safety. His was the responsibility to see that people did not commit unsafe acts or persist in unsafe work habits; his was the responsibility to see that equipment is in safe operating condition; his was the responsibility to report unsafe and unhealthy conditions in the general plant environment. To facilitate supervisory training in safety, the Education Council in 1954 commissioned an *Instructor's Guide* and a *Study Guide*, following the pattern of the Foreman's Management Training Program, a joint effort of Printing Industries of America and the Graphic Arts Technical Foundation. The Foreman's Management Training Program was developed as an answer to the problems which accrued from the practice of basing the selection of a foreman on the criteria of length of service and/or job skill. Too few in management recognized that getting work done through people is a unique skill that doesn't necessarily develop with longevity or inherently accompany a high level of craftsmanship.

One of the first items which a foreman is made aware of in the Foreman's Management Training Program is the recognition of what his responsibilities really are: production, quality, cost, maintenance, training or instruction, and safety. It is not be accident that safety is last on the list. This is where most placed it 20 years ago; if safety now has a higher priority, is it because of a higher level of social consciousness by top manage-

ment, is it because management recognizes that safety makes good economic sense, or is it because of that ogre, OSHA? My own belief is that safety doesn't belong on the list at all, as a separate, independent, clearly defined responsibility. We must get across the concept that safety is a way of life and, therefore, pervades all activities. Safety must be recognized as being inherent in all the foreman's responsibilities—the five mentioned earlier, or any other list of a front-line supervisor's responsibilities that could be assembled. Quite deliberately, Chapter One of your safety manual is entitled "Safety—A Way of Life."

The Occupational Safety and Health Act of 1970 became a fact of life at just about the same time the first draft of the Safety Manual's manuscript was ready for review. You can well imagine the pressures for copies of this manuscript. Everyone wanted to know, in 100 words or less, how to beat OSHA. Since even the first draft of a manuscript, sans illustrations, tables, appendices was better than nothing, we did make several thousand copies available in bound form. And you should have heard the screams. A squadron of B52's under full thrust at take-off is a whisper in comparison. Nowhere in the manuscript is wording of the Act translated into plain English and condensed into a handful of simple sentences. Neither has this been done in the Manual as finally published. In fact, the Act is referred to only on eight pages (out of 256), and this includes one footnote and a side reference within a small table concerned with Walsh-Healey data. The Williams-Steiger Act was written to protect our labor force; to eliminate dangers in the working environment or at least reduce the hazards to an irreducible minimum. The Act sets up the machinery for promulgating

standards, provides for administering the provisions of the Act (13 provisions in the original Act), and empowers the secretary of labor, with assistance from the director of the National Institute of Occupational Safety and Health, to enforce compliance with the standards. All this is the province of management—top management. The knowledge which management must acquire to fully meet its obligation is best learned through education conferences, seminars, management information services and similar programs. Training within the organization is management responsibility, and the Education Council of the Graphic Arts Industry has made available one training tool; the National Safety Council has other training tools available.

The Manual has been written to serve as a foreman's learning aid and reference guide. Our feeling was that there existed only a slight difference between safety in 1972 and safety in 1952. In 1952 we could only urge and recommend; in 1972 our Uncle is saying "Do it, or else." We did believe, and still do, that really effective safety training cannot result if the motivation is fear, or OSHA; effective training can be accomplished if it is based on intelligent and knowledgeable social awareness, good sense, and sound economics.

As for technical content, there is much more; after all, technology has wrought changes, and there has been tremendous growth in twenty years. However, there is really not much that is completely different or new. Technology has eliminated or, largely by happenstance, at least reduced some hazards, but replaced them with others. Isopropyl alcohol and iron perchloride, reacting with plate metals during platemaking, have virtually disappeared from the platemaking processes, as has ammonia; but the alcohol has been moved into the pressroom. Gravure presses are being run with sealed fountains fed from automated sumps of inks and solvents; but if an operator attempts to clear a doctor blade with a pad of emery and fails to ground himself, we still have flash fires.

Photoengraving has advanced into automatic and sealed metal-etching machines equipped with interlocks, where it hasn't

gone to more simply processed plastic image carriers.

But all of these are technical considerations and readily learned by the front-line supervisor; he even applies all this new knowledge, and must of it becomes virtually second nature. The engineers have done wondrous things to improve our equipment, they have even made forward strides in making the equipment safer. And our foreman are quite knowledgeable about this. But all the expertise in the world goes for naught, if all personnel are not trained, educated, ingrained, constantly reminded about living safely.

Let us consider how we can best accomplish the training of the foreman in safety; broadly, as well as in his comparatively narrow highly specialized area of work.

Assuming management has provided a safe and healthy working environment—the codes have been complied with—it is expected, and rightly so, that the front-line supervisor will see to it safety is always practiced. This is predicated on a knowledge of safe working habits. Knowledge is one of the supervisor's basic needs. All too often, however, his only knowledge is how to do a job.

A second basic need of the supervisor is an understanding of his responsibilities. He knows he is responsible for production, quality, cost, maintenance, training, and shop safety. But much of this he should be taught, rather than requiring he learn solely by trial and error. Management provides an aisle which meets the standards. The foreman needn't know the details of the standard, but he must recognize that maintaining the aisle is his responsibility.

A supervisor should be skilled in instruction. Regardless of whether there are such things as "born teachers," management must make certain that every supervisor is capable of teaching safe working habits. Too often, an improperly trained operator thinks he's hit on an easier way to do it, but fails to recognize a new hazard.

A good supervisor has to be skilled in improving methods. With a bit of training in fundamentals of safety engineering and education in industrial health, he can become adept at improving safety at a piece of equip-

ment or in a process.

It goes without saying that a supervisor must be a leader. Leadership can be taught. And in the learning, a supervisor acquires the habit of setting a good example. He doesn't lean over a piece of moving equipment with his tie dangling loose; he doesn't put his hands in a solution without first inquiring about the nature of the solution.

We've considered the basic requirements of a good supervisor—he must have knowledge of the work, understand his responsibilities, be an effective instructor, have skill in methods improvement, and demonstrate leadership qualities. Having accomplished this, we're ready for the techniques and details of a safety education and training program.

I've stated that safety, in the final analysis, is the responsibility of our front-line management people—the foremen. I've proposed that we not consider safety as a separate, independent, clearly defined responsibility, but that it pervade all activities and responsibilities. To accomplish this we must start training and education at the top of the line organization supervisory staff, provided executive management has formulated a forceful and clear policy statement of its total and sincere commitment to encourage safe and healthy work conduct, as well as to maintain a safe and healthy working environment. No subordinate, not even the plant manager as a subordinate of the chief executive, will give more attention to one particular aspect of his work—safety, in our case—in any greater proportion than the degree of emphasis which his supervisor places on that particular facet of the operation. The superintendent will pay attention to safety if the plant manager does; the foreman will emulate the superintendent; operatives will follow the foreman's lead; the lead man, bindery set-up man, first pressman on a large multi-color press, must inspire his crew.

This means that the training should, ideally, proceed down from the top, with each level of authority assuming responsibility for the education of the level immediately below. This is no different than the path along which all controls of an organization's functions are exercised. To assume, as the title of

this presentation might imply, that just training our foremen in safety and educating them in industrial hygiene could be the total answer to our needs is to fall into a dangerous trap.

The ideal is not easily attainable in most segments of our industry; it isn't economically feasible, and I'm not sure it is desirable in medium- and small-sized organizations. Few of our businesses are large enough to justify a full-blown formal line and staff organization. By far, most of the companies in our family of industries operate with what is actually a line organization within which responsibilities are carried on and authority exercised by people who are primarily in positions of line authority. Certain essential staff functions, such as accounting, are likely to be handled by outside professionals called in as required. A line supervisor will, in many cases, be the staff safety officer for the entire organization.

In most cases, formal safety education and training cannot be carried on within the plant, but requires outside cooperative effort. In many cases, even this isn't readily available. Let us see what can be done in this letter, seemingly hopeless case: The Double XX plant in Podunk has 20 employees. This is typical of our industry, since it is said that the median size is just such a plant. Because Double XX is located away from a printing center, it is a complete plant offering its market typesetting and binding services as well as the products from complete preparation and press facilities, both letterpress and litho. There are three supervisory people, plus the owner. The preparatory foreman is also the plant manager and production man; the owner sells, estimates, directs copy preparation, and handles all purchases except manufacturing supplies. In an operation as small as this, there's no sense following the principle of a safety training program starting at the top. The owner, or possibly the plant manager, has attended a conference on OSHA at a university, national convention or, perhaps, a congress such as is run in Charlotte or Miami in alternate years. The group of four can acquire considerable understanding of industrial safety and health by enrolling in the National Safety Council's

home study course in Fundamentals of Safety. In order to save some time, the Safety Manual for the Graphic Arts Industry is used as supplementary reading. The general organization of this Manual parallels the Council's Supervisor's Safety Manual, the text for the home study course. Our Manual serves to immediately indicate how the principles learned in the home study course are applied in everyday operation of a plant. Any number of sources of help are available, some at no cost, others at modest cost, to guide this group into an understanding of safety and health standards as they apply to a small plant, as well as instruction in meeting the recording and reporting requirements of OSHA. Compliance only requires desire and belief in the principles set forth in both the Supervisor's Safety Manual and our own Manual.

Let us take another situation, not hypothetical this time. A local graphic arts association serving a fairly large printing center has embarked on a full-fledged program which includes loss prevention services, safety and health inspections, and supervisor's training in printing plant safety. At a very nominal cost (\$35) a workshop (a real one) of five two-hour sessions is conducted during

evening hours. Our Safety Manual is the basic technical reference source, but each student gets to know the *Federal Register*, the Inspection Survey Guide, the Compliance Operations Manual. He learns how each OSHA form is to be handled. He performs an actual inspection, makes a full report, including references to appropriate standards. Inspection includes noise and air quality evaluations. It's against my principles to argue with success; the customers (member companies of this local association) are profuse in their praise. If I'm correct in my sensing the enormity of the task of developing the ultimate in a safe and healthy working environment, this program is a bit too hurry-up. The mechanics of safety is not the problem; our problem is to develop in all people, especially supervisors and managers, a sustained habit of continuous safety observations of all operations—mechanical as well as manual.

A safety education program must have its emphasis on preventing accidents, inculcating safe working habits, making safety a way of life. We believe that this approach lends itself to application in association programs as well as in in-plant programs.

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