Accidents Do Not Happen

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ABRAHAM LINCOLN once said "it is the duty of every man to protect himself and those associated with him from accidents which may result in injury or death." Accidents can be prevented by removing the cause. Take the case of the man who fell off the ladder. That did not just happen, it was caused. Either the ladder broke because of a defect, or it slipped because he failed to make it secure or get some one to hold it for him. It is possible that he leaned too far to one side after he reached the top.

Accidents are caused by negligence, inattention, lack of training, poor housekeeping, or poor supervision. Cluttered-up aisles, oil on the floor, frayed electric cords, mushroomed tools, unguarded machines, unsafe work habits, and poor supervision all add up eventually to an accident.

Tell It

Accident prevention is a selling job, like selling cottonseed meal or soybean meal, but it is harder to sell than those products. In your operations, if your extraction is not up to standard, you get it corrected immediately because you and your principals realize you are losing money. Yet many of us operate year after year consistently with a high accident frequency without realizing apparently that we are losing money in excess compensation insurance premiums and in production losses because of injuries to experienced operators.

Aside from the financial loss involved, we have to consider the human suffering and, in serious injuries, the anxiety and financial loss to the families of our employees. The supervisor who sells his employees the habit of thinking safety is bound to have a lower accident frequency rate. The supervisor may not be able to make a speech before a group of men, but he can talk to two or three at a time. We have a supervisor of that type. He would never attempt to talk to more than two or three men at a time, but he talks to some of his men every day and has maintained an enviable accident record consistently down through the years.

In your indoctrination do not pass over lightly the subject of safety. Be sure your employee understands the correct way to do his particular type of work. It is, of course, not the correct way unless it is the safe way. I might add that it has definitely been decided at one of our larger plants that the cause of most of our accidents has been due to the failure of proper communication.

Show It

In most cases telling the employee is not sufficient; it is often necessary to show him. We remember more of what we see than of what we hear. Most of you have heard, after an accidental injury, such expressions as "I told him about it" or "I told him how to do it." You can tell him over and over how to do it; but if you do not show him, do not be surprised if you end up with an injured employee. After you have shown him, be sure he understands how and why. You say "that takes time." Sure it does, accidents take time too. Besides the cost in time, they cost in production, higher insurance premiums, and most important of all, human suffering.

Management and your supervisors will be interested in your charts and/or graphs, but the average employee knows nothing of charts and graphs and cares less. Therefore that method of getting the safety message over to him is out. Few of them understand the meaning of the word "frequency." Our experience has been however that they do read and profit from ordinary posters, preferably the comical type. May I suggest that you place not more than two or three posters on the bulletin board at a time? Some of our supervisors say only one and practice that. The idea is to arrange them neatly to attract the employee's attention, and change them at least once each week.

We have a picture of a hand that was in contact with a cottonseed linter saw. The accident occurred at one of our plants several years ago. As a reminder to others in the linter rooms we tried placing one of these prints on the linter in a conspicuous place. Several of our operators objected however, claiming that the picture made them nervous. Gruesome as it is, it appears to me that one look at that picture would indelibly stamp on the human mind the dangers of linter saws. Yet we still have an occasional injury of that type. Only one however, since this one, has resulted in the loss of the entire hand. Those of you who crush other than cottonseed, of course, do not have this hazard.

If I were an artist, I think I could paint some wonderful pictures or posters of things I have seen in our own plants. I could paint an impressive picture of a man's boot, containing a foot and a part of the leg, found in the conveyor between the seed house and the cleaning room. The rest of the man's torn body was found beside the open conveyor inside the seed house. This accident was caused when some one left the cover off the conveyor. Yet in spite of the publicity given such accidents we occasionally find a part of a screw conveyor uncovered.

I would paint a picture of a man with a broken arm and leg as well as multiple bruises about the body, lying at the base of the rolls in one of our plants. He had fallen from the rolls while making repairs because we expected him to hang by his tail instead of erecting a catwalk on which to stand.

A gruesome picture could be painted of the torn hand of one man that resulted when a fellow employee pushed the starter button while the hand was inside the fan. This accident really had two causes. First, the injured man failed to hang a sign on the switch reading "Danger, Working on Machine, Do Not Start" or to lock the switch. Second, the fellow employee should never have pushed the switch without determining the reason why the fan was stopped.

We had a fatality at one plant when some one started a machine while repairs were being made. In this case there were two switches controlling the machine. A warning sign was placed on one switch

but not on the other. Now the employees at all plants are under strict instructions to lock all switches when a machine is being repaired.

Sell It

Many employees have the mistaken idea that a safety program is for the benefit of the company only. Your third factor therefore, in selling safety to your employees, is to show them that they too will gain by cooperating with your program. Deep down in most human hearts is a desire for security, a desire to live and a desire for freedom from the consequences of disaster. Jobs mean security, food, clothing, family, and recreation. Self-preservation, "Nature's First Law," involves not only protection against death but protection from accidents that might result in injury or impairment to health. Sell the employee on his own pocket-book. Show him how he can profit in dollars and cents by cooperating with the safety program. Everyone loses when an employee has a serious injury. Aside from his own pain and suffering, his family has the anxiety and the loss of income. The company loses in several ways, but usually the invisible loss is much greater than the visible loss.

It is only natural that the employee likes to feel that he is essential or at least important to the organization. He likes to feel that he is trained for his particular line of work and that he could not be replaced easily. I feel however that the employee should be made to understand that your safety program is important and you demand his full cooperation.

Do It

I have visited plants, held meetings, pointed out hazards, in fact, have done all the things I might normally be expected to do, then before I could get home, a serious accident would occur. Your safety program, if planned—and it must be planned—is only a mass of talks, booklets, rules, and posters until it is put into practice by men, materials, and action. First, management must be sold. You may be the best safety director and/or may have the best supervisory force in the world, but unless you have the whole-hearted cooperation of management your safety program will not be successful. H. Woodhead, president, Consolidated Vultee Aircraft Corporation, said several years ago "a good safety record, in my opinion, is the proof as well as the result of good management." When you have succeeded in selling management, then it should be comparatively easy to sell operations. Your supervisors with the assistance of the safety director are charged with the responsibility of selling the program to the employees.

I saw one of our supervisors one day cutting metal with the acetylene torch without wearing his goggles although the machine had a nice new sign on it which read "Do No Use This Machine Without Goggles." A pair of goggles hung on the machine. When I called his attention to the fact, he said that it would take only a few minutes for the job and that he had no goggles with him. With that I reached for and handed to him the goggles from the machine. That it takes only a fraction of a second to lose an eye from hot metal is not the sad part of the story. To any employee who saw him or heard of that unsafe act he has foreever lost any influence he may have had in the promotion of accident prevention.

In summarizing, I would like to point out that accident control is as much a part of your operations as protein control or extraction. Until your organization from top management down realizes this, your safety program cannot be successful. Tell your employees about your program. Show them the correct way to do the work assigned to them and further illustrate with posters and warning signs. Show the employee that the program is not for the benefit of the company entirely but for his profit too. Your supervisors should set a good example before their men. Endeavor to imbue each and every employee with a desire to protect himself and those associated with him from accidents which may result in injury or death. And remember too, that accidents do not happen, *They Are Caused.*

Safety Aspects of Handling Heavy Fuel Oils

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WHERE ADEQUATE SAFETY provisions are incorporated in the design of heavy fuel oil installations and where appropriate operating procedures are followed by personnel who recognize the potential danger of fire, there is little hazard involved in the use of heavy oil as a fuel. Fires in heavy fuel-oil-fired plants have been quite infrequent, but where they have occurred, they have generally been traced to one or more of the following causes: faulty design in equipment, excessively high oil temperatures, introduction of water into the system, contamination with low-flash hydrocarbon, and improper mechanical repair procedures. This paper discusses some aspects of each of these potential fire-cause factors and some recommendations on fire extinguishment with heavy oils.

Faulty Design of Equipment

Excellent guides for the design of heavy-oil-handling facilities are contained in the N.F.P.A. Flammable Liquids Code No. 30 and N.F.P.A. Standard on Oil-Burning Equipment No. 31. These publications and those of reputable oil-burning equipment manufacturers, if carefully adhered to, should provide reasonable design safety protection. For this reason this subject need not be dwelt upon except to mention some design failures which have caused fires in the past or have contributed to the severity or difficulty of the extinguishment of fires.

A design feature which should not be tolerated in heavy-fuel-oil installations, or in any other hydrocarbon-handling facility, is overshot filling lines to tankage. This applies equally to recirculation lines and pressure-relief return lines. The process of free fall of liquid from top of a vessel to the liquid surface is a prolific generator of static electricity. If the vapor space contains a hydrocarbon-air mixture in the flam-