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LOSS CONTROL

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Cost reduction is the motivation that allows loss control to take its place in the profit-making activities of a concern, alongside work simplification, good material handling, production control, damage control, preventive maintenance, and the other techniques of management. "Loss Control is any intentional management action directed at the prevention, reduction, or elimination of the pure (non-speculative) risks of business."

Loss control or loss prevention is not new to managers. The techniques of cost control applied to the other managerial disciplines are standard. This is an effort to encourage you to apply all you know about management to accident and downgrading incident evaluation. What losses have happened and the application of countermeasures is only part of the problem. Information and experience combined with thought should point toward questions and the instituting of countermeasures before downgrading incidents occur.

Cost reduction may be regarded in itself as a major purpose of the loss control program or it may be considered a means of offsetting the costs of accident prevention activities which a progressive management might choose to carry on regardless of program cost. Experience has generally been that an effort to reduce costs has provided a profitable reason for expanding a loss control effort which, but for accident costs, might never have been recognized as inadequate.

Management has to seek efficient operation if it is to manage at all. You can't afford to tear up one front end loader a year if your competitors aren't doing it. It is just too much money. R. B. Blake, as senior safety engineer of the Division of Labor Standards, U. S. Department of Labor, in 1944 said, "The main driving force behind the industrial safety movement is the fact that accidents are expensive. Substantial savings can be had by preventing them." This from the Labor Department before OSHA or MESA. This fact does not contradict the idea that the first and highest purpose of accident prevention work is humanitarian. It simply shows that for many companies reduction of cost has been the motive that has actually had the most effect in bringing about a reduction of accidents. Humanitarian reasons have maintained programs even where the damage cost data doesn't exist, and will continue to do so.

Loss control can include the following, but not be limited to these areas: on-the-job injuries, on-the-job illnesses, off-the-job injuries, family injuries, motor vehicle damage, materials handling equipment damage, general property damage, product and material waste, shrinkage-theft-burglary, vandalism, computer fraud loss, fire-related losses, products liability claims, general liability claims, air and stream pollution costs, drug abuse and alcoholism, absenteeism costs. Cost control is a motivation, but there is always a balance. This presenta-

tion will be more narrowly concentrated on damage control and more conventional loss prevention activities.

The challenge, opportunity, and understanding of loss control have to be kept in perspective. It is possible to be carried away by cost control. Always diving for the bottom line can lead to some bumps on the head. My personal guide when tempted to be too cost conscious is a quote from Albert Einstein: "Concern for man himself and his fate must always form the chief interest of all technical endeavor. Never forget this in the midst of your diagrams and equations."

The methods for evaluating the losses and the system for isolating the costs are the diagrams and equations. But as we discuss the loss control problem, keep in mind that without "man and his fate" as the core and goal, we don't have anything to talk about. I believe that there is humanitarianism in our effort to be prudent in spending money on accident prevention. Keeping the company solvent and competitive has humanitarian intent since it keeps people working. People working gives them the means to achieve many of their goals and objectives. Humanitarianism and cost reduction are key goals in accident prevention. There are certain groups that would have you believe they are mutually exclusive, but they aren't.

If you reflect on current legislation and regulation, it would appear to presuppose two things: First, it seems to presuppose that every management is irresponsible and has to be punished for its myriad failures, real and imagined. Second, the legislation and regulation seems to presuppose that if you meet the requirements of the rule book, you will prevent injuries. Experience with the standards has not confirmed this, in my opinion, but the law is still physical hazard oriented, the current interest in occupational health notwithstanding. The more enlightened professionals in government seem to agree that the rule book method is limited.

Loss control starts from a point of view different from mere compliance. It assumes that the organization is willing to work toward preventing all serious losses, of which personal injuries are only a part. Thus, the concentration of effort has changed but the goal has been expanded rather than limited. The concentration of effort is on the management of the function and not on exhortations and posters. Thus the goal is greater than mere compliance with the law. The goal is maintaining the people and the organization in which they work. Loss control is based on a broader set of value judgments than would be included in simple compliance.

Remember the definition: "Loss control is any intentional management action directed at the prevention, reduction, or elimination of the pure (nonspeculative) risks of business." Remember that success follows where an effective system of management control is built.

One standard definition of accident is: "An accident is an undesired event that results in physical harm to a person or damage to property. It is usually the result of a contact with a source of energy (i.e., kinetic, electrical, chemical, thermal, etc.) above the threshold limit of the body or structure." For this discussion, the two keys are, first, "contact with a source of energy" and, second, the requirement that the energy transferred is "above the threshold limit of the structure" with the result that the structure or equipment or product is damaged. This leaves out organizational damage and the results of the damage. That means that if you drop a small stone on a guard rail nothing happens. If you drop a boulder on the same guard, it will seriously deform it.

Other qualifying features for this discussion as they relate to the nature of a property damage accident are:

1. An accident is unintended or unplanned. Thus the wear and tear on the head of a gyratory crusher is expected. It is designed in anticipation of large rocks

falling on it every day and hour of its useful life. So the normal wear and tear can in no way be counted as accidental. Over a period of time this part of the equipment will be damaged and will wear out. But it won't be "accidental damage." The judgmental area is between fair wear and tear and unintended accident damage with injury potential.

2. Was there a realistic possibility of a personal injury when the accident occurred? This last condition is the one that separates what we usually consider "preventive maintenance" from damage or loss control. I choose to blur the edges of the definition by one more consideration: As a result of the damage accident, has a new hazard been introduced because a man will be expected to use damaged equipment? Will serious hazards have to be faced during repairs? If the answer to either of these last two questions is "yes," then it is a loss control problem along with a preventive maintenance problem. I am inclined to believe that damaged equipment can represent a production problem as well as an accident or hazard exposure. A seriously damaged conveyor belt can carry some material. The load may have to be limited or the belt may spill a good bit, reducing production and increasing the labor costs of clean up.

It is very likely that the striking interdependence of preventive maintenance and loss control will become obvious. All the better. As cost control devices, they complement each other. As production insurance devices, they complement each other as well.

I believe that 95 per cent of the world's people are good folk trying to do a decent job. Therefore, I look for explanations within this framework. Errors, mistakes, and oversights, for whatever reason, explain more failures than "carelessness" or "thoughtlessness" ever will.

There has been research done on human error in the assembly of parts in manufacturing. We find that there are

tremendous opportunities for errors. Some errors are introduced by the work situation and some by the characteristics of the person who has been put in the work situation. In small assembly jobs, there usually exists no possibility of killing a person or destroying a loader, truck, or conveyor. In our industries, there is a real possibility of this worst of all possible situations and, therefore, we have a grave responsibility to make major efforts to minimize errors and mistakes.

Fortunately, most mistakes and errors precipitate some sort of compensation or corrective action before they cause an accident or property damage. That is why investigation of incidents is important. We have to learn from incomplete error sequences before they become complete error sequences that result in serious accidents or injuries.

For a real example in retrospect, look at one small area of my company's experience:

In one limited area of our ready mix operations as a safety manager, I am appalled that in a recent year we had 14 accidents on public roads and highways with our trucks, involving collision. With zero as a goal, 14 is far short. Let's look at it another way. This particular operation drove very nearly one million miles in that year. That still isn't such a good perspective for general understanding. From plant to job, there were nearly 60,000 round trips. So in 60,000 round trips, we had accidental damage involving our trucks on 14 of them. Now, that ain't bad! You know the hazards of city streets and highways because you drive on the same ones we do. You know the variables in people because you hire the same ones we do.

Rest assured that the trucking superintendent is aware of both comparisons—he gave me the data. We still want zero, but we are grateful to our drivers for working so hard and correcting so many of their errors before they caused any injury or damage. Consider how many were not involved in injury or

property damage. Consider how many positive steps were taken.

Good investigation and the application of corrective measures is one combination to reduce the possibility for errors or for damage. You will remember that earlier I suggested that information and judgment combined can lead to the anticipation of problems and appropriate countermeasures before they cause difficulty. This happy condition exists where there are management controls. A good set of management controls makes information gathering and judgment possible.

Not all errors lead to measurable dollar-draining interruptions or accidents, but those that do need checking. Moving from an injury oriented accident prevention program to a broader based one takes work to overcome the natural resistance to change. You will not have the opportunity to do an organizational pre-frontal lobotomy. You will not even have benign neglect. You will hit hostility. You will have to start with what you have and work to convince people to change and expand their thinking. On the one hand, you will see management controls not used, and on the other hand, people saying that getting the controls implemented is not the safety man's job. There are many opportunities for improvement with energy and tact.

There is a challenge in trying to develop a cost justification for increased accident prevention in the guise of loss control when there is a premonition of need. First, efforts come from personal injury experience. Secondly, efforts come from honestly trying to apply the useful part of the ratio data developed by Heinrich, Byrd, and others. Third, the efforts have to be concentrated on locating the obvious damage costs. The quality control department and the maintenance folks can help. In helping QC and maintenance do their job, you are doing yours. The opposite is also true: as you convince more people to help, the loss control work is spread

about with much more success and good results.

There is an awareness that there are obvious and masked injury costs. The same is true for damage costs. Early in the history of the safety movement, the idea of insured or reimbursed costs made its appearance. To dramatize the size of the problem, an effort was made to develop a relationship between these two costs. The ratios in various studies range from 1:1 to 1:50. One dollar of obvious direct or insured costs equalled each dollar of masked indirect or uninsured costs.

The variety of ratios exists for multiple reasons. For starters, there are major differences between types of industries, kinds of raw materials, kinds of equipment, and kinds of finished materials. Flash back to our energy transfer idea of an accident and you will immediately see that various industries use energy in very different amounts, kinds, forms, and shapes. A D-8 is quite different from a laser. Diesel oil and blasting agents, when controlled, release very different amounts of energy in each explosion. The presence of potential energy sources is a challenge to the loss control specialist. Fortunately for us, a great deal of our fixed and mobile equipment is comfortably sturdy, and our product can very often be made one size smaller, washed one more time, and sold. Thus, I incline to look for a low ratio for our cement, quarry, and mineral aggregates industries. Within the mineral industries, different companies will have different ratios. But some of our individual damage accidents, though rare, are expensive. Did you ever look over a 140-foot face and see a pile of disassembled yellow?

There is a serious problem in any of the ratios that have been proposed. In many cases, the ratio of one industry is mistakenly applied to another. In other cases, old data is used. One author, commenting on a common ratio, says: "A reason for management's lack of confidence in the ratio is this. Whenever a

involved. But suppose you do serious damage with, or to, a haul truck; recovery from that kind of accident takes money.

Thus, the costs of the risks of doing business are either transferred by insurance or retained and paid out of current revenues. But don't be trapped into believing insurance is doing you a favor. Dollars from the insurance company aren't free.

The basic distinction between risk retention and risk transfer is where "immediately after a loss" the funds to restore the loss originate. If they originate within the organization, the financing technique is self insurance or retention; if the funds originate outside the organization, the financing technique is transfer. Here is the hooker: the distinction between risk retention and risk transfer only exists in the short run, immediately after the loss. In the long run, an operation can usually count on having to pay its own losses—as premiums for insurance—as some form of extra compensation or other to the party to whom the risk of loss is transferred or as repayment of a loan to restore the loss.

In fact, an organization which transfers a risk of loss often ends up by paying more than the cost of the losses transferred in the form of expense and underwriting profit loadings to insurers, or interest on the loans to creditors. Thus, in the long run, the difference between risk retention and risk transfer blurs and perhaps disappears because, over the course of time, the organization ends up paying at least its own losses no matter what risk financing techniques it chooses. In short, the retention/transfer distinction is a short run difference describing the extent to which the organization absorbs its losses as they chance to come (through retention) or seeks to spread the cost of losses out more evenly over a period of time (through transfer).

This description has been added to explain the usefulness of gathering damage cost data to point the way to loss control techniques to save the money. If

final cost figure is arrived at by taking a known figure and multiplying it by such a large multiplier as five, without clear evidence of the accuracy of that multiplier, any statistician or hardheaded businessman will have grave doubts. If a known figure were to be multiplied by, say one-fourth, in order to add some further costs, the result might be used with a good deal of confidence even if one were not sure that one-fourth was precisely the right multiplier. One could be sure the resulting figure would not be wholly out of line. When we use five as a multiplier, however, and are not sure whether the multiplier really should be one, three, or seven, the result just is not convincing enough to form a basis for action.

"Even though the 4 to 1 ratio is not a satisfactory method of finding the cost of a company's accidents, the idea of using some kind of ratios or averages is on the right track. It is too burdensome to record the indirect or uninsured costs of accidents in the regular, permanent books of a company; the alternative is to develop averages or ratios that may be applied to the data already a part of the recordkeeping system."

Despite the severe deficiencies of ratios, in many cases they are the only starting point until individual company data is developed. In any one medium of small company, there is the problem of limited experience. There is the problem of using resources to record the experience in any organization. Gathering the data costs money, just like the losses cost money. Only the amounts are different. Management knows it has control of its staff department's time and energy. It is wise to use the resources on projects with a point. The goal is to keep losses small with no more controls than necessary.

Whatever the size of the dollar amount of accident costs when there is an accident or incident, it takes funds to cover the costs. These funds have to be available promptly. If you mess up a pickup truck, there isn't a lot of money

you know the size of the problem, you can project the size of the loss control effort. Preventing a large loss is less expensive than recovery from a large loss. Keep in mind, you have to exercise judgment. Keep in mind, you will have losses. You will not, with limited resources, control all loss potentials. Work on the significant ones thoroughly enough to justify large deductibles and save money on claims. You should be aware that, at present, insurance availability and costs are such that you have to do a considerably better loss control job just to maintain your current coverages even at increased costs.

Preventive maintenance is a useful device. It is a prime example of an area where mechanical problems can be met with mechanical solutions. A preventive maintenance program is designed to handle fair wear and tear. Preventive maintenance is a system put together to take advantage of what is known.

Repairs as requested, performed, and recorded by use of work orders and stores requisitions make up a machinery history. Then the machinery history is used to pick the optimum time for further preventive maintenance.

Operational and maintenance experience precipitates action and changes. Operational circumstances can affect scheduling, rates, or changes in availability of materials or repairs parts. Lack of spare parts can cause major adjustments or even shutdowns.

The decisions for operational changes are based on facts about the problem with a probable solution. Shapes and sizes of loader buckets are changed for different materials, etc., but the changes following from experience and the recording of the experience.

Costs are monitored to determine what short and long range plans are to be. Judgments are made and reflect the quality of the data. It shouldn't be long before the machinery history points out some things that aren't fair wear and tear. What are these unexpected costs? Thus, there is a new category. Facing

costs from a category that reflects the accumulation of failure is tough. However, making the changes to eliminate and correct the failure is a manager's job.

It takes a great deal of honesty to not include property damage accidents in fair wear and tear. This is where damage control enters. Cost isolation from a damage accident is a subdivision of preventive maintenance. Damage control is the application of good management to the incident and accident problem. All combined, it fits into loss control. Damage control can be tacked on to the preventive maintenance program. The two programs go together. The machinery history tells what the maintenance problems are. You want the accident history to tell you what your loss control problems are. That translates into setting standards, teaching, and follow-up. In one word—management.

Take the standard work order and have the shop tick off one of two spaces on the work order when repairs are done. The mechanics know the score. Fair wear and tear goes on machinery history. "Other reasons" for requested repairs go on the accident log. Someone has to review both accumulations of data.

Then, just for good measure, the follow-up system is built to include the opportunity to make adjustments. Like anything else, there have to be controls.

Like anything else, there can be complications. Here we drag in an earlier qualification, where increased maintenance causes increased exposure. Planned maintenance produces fewer accidents than crisis maintenance after an accident or equipment failure.

The preventive maintenance program is put together to minimize the uncertainty in running equipment. The loss control program is put together to take some of the uncertainty out of accidents. The loss control program is put together to add an expanded management framework to your accident prevention

productive, whereas if there is feedback, there can be learning. From learning, there is corrective action. Corrective action planned, executed, and followed up is management.

Thus our humanitarian interests are served. The people and the operation have a protected present and a more secure future.

program. Controls make the difference. In your operation you will often make a trade off to get rid of an uncertainty. Taking steps to eliminate property damage and injuries is positive action to minimize the uncertainty of frequency and severity of accidents. A dynamic feedback system has to be built.

The elements can be put in a linear system that is less than 100 per cent

ASSOCIATIONS—A RESOURCE FOR THE SAFETY PROFESSIONAL

By ROBERT C. HOLLENBACH
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This is an increasingly complex world we live in. We find ourselves in the middle of the maelstrom, between the corporation and its publics, and we are charged with accommodating the mutual self-interest of both. Perhaps because of these increasing complexities it is rare to find a business man who is not a member of one or more associations.

In Washington, D.C., our telephone directory lists about 1,800 trade and professional associations, and almost 1,000 of them make their headquarters there.

In Washington, D.C., over 80,000 people are employed on association staffs. They earn about \$1.2 billion per year and their industry is the third largest in Washington. (The other two are Federal Government and tourism/retailing).

Chicago and New York City each have almost an equal number of associations and association staff personnel, and every capital city of each of the 50 states lists a long list of state and regional associations.

Association conventions involve a lot of money every year. In 1974 it was estimated that: \$2.5 billion was spent at conventions by the delegates; \$1.0 billion was spent for delegate travel; \$0.5 billion was spent by associations as the cost of operating conventions; \$1.0 billion was spent by trade show exhibitors. This totals \$5 billion and is generally considered to be a conservative figure.

In addition, companies pay annual dues. When they consider joining, and each year at renewal times, it is natural that they ask themselves, "Is it worth it?"

I think it is fortunate that annual dues require this question to be asked so

often. It is good to take inventory regularly. The association for which I work, the National Crushed Stone Association, set up objectives 60 years ago. Since then society has changed, technology has changed, government has changed. Programs have become obsolete, new ones started, and NCSA has had to remain fully responsive to the current needs of its industry, just as every other successful association has to do.

Since the real members of these industry associations are companies rather than people, I think we should first look quickly at the value of association membership to the corporation. Then, we will briefly consider the role an association fulfills as a vital link between its member companies and government legislative bodies and regulatory agencies.

Finally, and this is the main thrust of my presentation, we will look at the association and the individual who participates for his company—in this case, the safety professional.

Earlier I mentioned the number of associations, and some of the costly items relating to their operations. For American business to support associations, there must be many advantages to them:

1. An association is the eyes and ears of the industry it serves.
2. It is an industry-wide pooling of talent.
3. It is a vehicle for the collection of information, the development of knowledge, the transfer and exchange of technology for the mutual benefit of all.
4. It is a platform for the encouragement of ethical conduct, since through

the association would-be mavericks quickly sense peer pressure whenever their actions are judged by others in the industry as detrimental to the image and public welfare of the industry as a whole.

5. The association allows industry to speak to government in a strong, collective voice without placing one member company so clearly in the spotlight that it becomes susceptible as a target. Example: company communications made directly to a regulatory agency could wind up as a public document.

6. A cooperative research and education capability.

I said earlier that the association is a vital link between industry and government. The member of Congress and the official of a regulatory agency each look upon an official spokesman for an industry association as the representative of a strongly united group. They know that as a spokesman his words, oral or written, have been composed carefully and approved as industry-wide policy. Therefore, such remarks to a Congressional committee, or on a proposed regulation, or at a public hearing are usually carefully studied by government officials.

Even industry spokesmen, however, must keep close track of what the Federal government is doing. This requires daily review and reading of the *Federal Register* and the *Congressional Record*. Few companies in any industry thoroughly review these massive publications. Instead, they rely on their industry associations and other commercial information services to do so.

It is estimated that the number of pages of the *Federal Register* which contain or will contain new Federal regulations in 1976 will be about 60,000 pages. In recent years, the rate of increase in pages containing new regulations has been 25 percent per year.

Recently the Council of Economic Advisors, in a report to President Ford, estimated that the total annual cost of Federal regulation of industry was about one per cent of the gross national

product, or \$66 per person per year. And now, we come to the association and the individual who participates for his company—in this case, the safety professional.

Not too long ago, at a Safety & Health committee meeting, one of the most active, hard-working members of that committee, a highly respected safety engineer, expressed his frustration at the great difficulties the committee encounters in attracting attendance to safety workshops at our convention. He felt that within the industry, as a whole, top management didn't support safety programs strongly enough.

Actually, he was merely expressing his frustrations because, as another member of the committee quickly reminded him, top management does support safety programs or it wouldn't be paying the travel and expenses of the Safety Committee members to that very meeting.

Actually, most national industry associations list safety programs as one of the principle reasons they first organized. Virtually every industry association has a strong Safety & Health committee and encourages every company safety director to participate in it.

In NCSA, we have an outstanding Safety & Health Committee. It is outstanding because of the enthusiastic participation of most of its members who regularly attend most of the meetings. Without this committee and its members, there would be no way in which I could develop the technical responses to proposed regulation and legislation.

There would also be a much more limited effort in educational workshops, safety aid production, and many other areas, for our staff at NCSA does not include a safety professional with practical experience in crushed stone operations.

I do feel however, that even these outstanding safety and health committee members fully appreciate the value of their participation in terms of their own self-interest. I have reviewed some of the

following points with several of them and I think that the points I shall now enumerate are valid.

1. Proper participation by a safety professional in the activities of his company's trade associations allows him to function on a much higher level than he can within his own company. His personal professional development is accelerated because he must consider the broad perspective of the problems of the entire industry, instead of only those which occur within his own company.
2. The association committee gives him an opportunity to publish his ideas in trade journals and in association safety manuals so he becomes more widely known faster.
3. His professional education can be augmented by participating in specialized workshops and educational efforts which, as a member of the committee, he helped to perceive need for in the industry.
4. In his committee and other association work, he develops valuable cross contacts with the best known, and most reputable, safety and management names in the industry.
5. The next point is simply an opinion of mine. It is that association participation will be of great help to the professional in maintaining his enthusiasm for his work. Enthusiasm is a contagious thing and it is enhanced by encouragement and appreciation. On a Safety & Health Committee such as ours, anyone attending a typical meeting has to be impressed by the dedication, enthusiasm, and experience which our safety professionals exhibit.
6. Another advantage of participation is that in the company of his peers, no one is content to shoot from the hip. He learns quickly that realistic goals and practical deadlines are a necessity. This is particularly valuable for the small producer who becomes interested in safety and health committee work because he has no safety professional but realizes he has a problem.

He learns from the others that it is

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uneconomical and hazardous to operate safety programs on the Christopher Columbus philosophy. Perhaps you are not aware of this philosophy but I'm sure you have all heard of Christopher Columbus. When he started out from Spain, he didn't know where he was going; when he got to the New World, he didn't know where he was; and when he got back to Spain, he didn't know where he had been.

The next advantage I see for participation in association work is that the safety professional becomes more capable of developing logical, clean-cut programs as his discussions on both safety and management related problems give him the cumulative advantage of the total experience of others on the committee. At our committee meetings, the cumulative crushed stone industry experience of the safety directors can amount to more than 200 years. These men coordinate, cooperate, and communicate with each other, they know how to listen to each other, and they are team workers.

Thanks to one of the members of the NCSA Safety & Health committee, I came across a speech delivered to the Association committee at the National Health Congress in 1961. It was given by a gentleman named Ivan F. LeGore, who was then safety director of the Portland Cement Association. It was an excellent speech, called "The Why and How in Initiating and Developing an Association Accident Prevention Program." He said: "Answers to problems are found by minds that stand off and look; that consider the relationships of things to each other; that see where things might go wrong and how they can be straightened out before accidents can occur. Answers are found through experience-sharing for mutual aid, whether the discussion of safety problems takes place among a few persons in a single department or plant or among the representatives of a number of plants and companies."

I know that if we had a round-table discussion we could find many more

reasons for safety professionals to regard association work as a special opportunity for their own development and their employee's benefit.

What I have tried to do here is remind you that you are here because your employer supports your need for professional interrelationships; because he recognizes that his company has its own share of responsibility to the industry as well as its workers; and, finally, because through your participation and the participation of others in other areas

of association activities, the company has an open road for the interchange of valuable information and technology as well as better insight into the requirements which society is demanding that he meet.

There was a great gentleman named Daniel Webster, who once said: "There are many objects of great value to man which cannot be attained by unconnected individuals, but which must be attained, if attained at all, by association."

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National Safety Council

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