Western Australian
Forests Department

ACCIDENT PREVENTION TRAINING FOR SUPERVISORS

Modified from the Original
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CONTENTS

ACCIDENT PREVENTION TRAINING FOR SUPERVISORS

CHAPTER 1

Definitions

Note: The definitions listed in this chapter are sufficient for an understanding of this Training Manual. For the comprehensive range of definitions refer to the Standard Australian Code for the Recording of Industrial Accidents. (No.CZ6—1966).

SAFETY

As applied to industry, "safety" means, in general terms—"the control of men, machines, materials and methods to provide a working environment in which people will not be injured or property damaged".

We use the word mainly in connection with the many activities to achieve that control; we form safety organisations and policies, plan safety programmes and campaigns using safety publicity, make safety rules, carry out safety inspections, keep safety records, use safety equipment, appoint safety officers, run safety courses . . . to mention some of the activities carried on in the name of safety, with the objective of preventing accidents.

SUPERVISOR

A supervisor is defined as any person who is in charge of others including members of Professional and Field Staff, Overseers and Leading Hands.

ACCIDENTS

Many attempts have been made to give a concise definition of an accident. The following definition is generally accepted as conveying the meaning clearly and concisely:—

> An accident is an unplanned, non-controlled and undesirable event or a sudden mishap which interrupts an activity or a function.

In applying this definition to an accident prevention programme, we should remember that not all accidents result in an injury; actually, only a few of them do.

The ratio of accidents producing injury to those producing no injury varies considerably with the type of activity. The accidental touching of a live high-voltage bare conductor will almost certainly produce an injury in each accident, but a man may drop a heavy object many times without hitting his toes. However, even when no injuries result, damage to materials or plant and loss of production may be the product of an accident; hence the need for taking action to prevent the non-injury accidents as well as those which produce an injury.

For the purpose of the compilation of industrial accident statistics, the standard Australian Code for the recording of Industrial Accidents (No. CZ6, 1966) defines an accident as—

> An event arising out of employment and occurring during time on duty and resulting in personal injury to an employee. It includes a disease to which the employment was the contributing factor.

DISABLING INJURY ACCIDENT ("D.I." Accident)

A "D.I." accident is one which causes the injured person to be absent from duty during any day (or shift) following the one on which the accident occurred and on which the employee would otherwise have been on duty. Such absence may be either continuous or intermittent. All fractions of days are excluded.

TIME LOST

The actual number of working days of disability of the injured employee in any period as the result of a D.I. accident and, if applicable, the appropriate number of days to be charged, in case of death or permanent disability.

AGENCY

The means by which the injury was inflicted.

CAUSE OF THE ACCIDENT

The factors, including the unsafe conditions and unsafe acts, that made it possible for the agency to inflict the injury.

FREQUENCY RATE

The frequency rate is defined as the number of D.I. accidents per million man-hours worked. The number of man-hours is simply the total number of hours worked by all employees in an organisation or department during a month, a year, or any other period of time.

$$\text{Frequency rate} = \frac{\text{No. of D.I. accidents}}{\text{man-hours exposure}} \times 1\,000\,000$$

For example, a Division may work 500 000 man-hours during a year and have eight D.I. accidents. Its injury frequency rate, therefore, would be:

$$\frac{8 \times 1\,000\,000}{500\,000} = 16$$

SEVERITY RATE

The severity rate is defined as the number of days charged for D.I. accidents per 1 000 000 man-hours worked and is reckoned in a manner similar to the methods of computing the frequency rate.

$$\text{Severity rate} = \frac{\text{total days lost (including time charges)}}{\text{man-hours exposure}} \times 1\,000\,000$$

For example, the total time charged for D.I. accidents in a Division was 208 days. The Division worked 500 000 man-hours during the year. The severity rate, therefore, would be:

$$\frac{208 \times 1\,000\,000}{500\,000} = 416$$

MEAN DURATION

The average number of days lost per accident.

$$\text{Mean duration rate} = \frac{\text{total days lost (excluding fatalities)}}{\text{total number of lost-time accidents (excluding fatalities)}}$$

CHAPTER 2

A Brief History of Accident Prevention in Industry

Aim: To benefit from the experience of others, through studying "The Brief History of the Development of Accident Prevention in Industry".

In order to gain an understanding of modern accident prevention techniques, it is necessary to consider the history of the industrial safety movement.

This history may be divided into a number of successive but overlapping phases. Not only are these phases recognisable in the development of the safety movement as a whole but they can also be traced in the history of each individual company's safety development.

FOUNDATION STAGE

This commences when management becomes aware, or is made aware, of the need for some system of industrial safety.

In the early part of the Industrial Revolution, the safety of the individual and his freedom from injury depended largely on his own attitude of mind, his skill with his tools of trade and lots of luck. The attitude of the employer of those times was that accidents were the inevitable by-product of industry and the responsibility of the worker.

With the increasing use of machinery, accidents became more numerous and severe. Thinking people in the community, and the more enlightened employers, became aware that something should and could be done about preventing some of the injury suffered by the worker in industry. An awakening social conscience gradually brought more and more pressure to bear on the employer, in the form of legal obligations, such as the provision of the Factories and Shops Act. The Workers' Compensation Act made the employer provide monetary compensation to the injured worker. At the same time, employers became increasingly aware that accidents meant waste and waste means inefficiency.

GUARDING AND PROTECTION PHASE

Having become aware that it was necessary, from a number of points of view, to do something about industrial accident prevention, interested and enlightened management looked around for some place to start on the problem. It seemed to these pioneer safety men that the first line of attack lay through the engineering aspects. This was the practical man's approach. It was hoped that close attention to the proper design and guarding of machines would make it impossible for any workman to ever injure himself. This concept led to the second phase of safety development—the *guarding or protection stage.* Guards were provided wherever possible, and older machines replaced with new ones of safe design, as opportunities arose. It was soon apparent that some of the older equipment could not be adequately guarded, nor was it possible to replace it quickly. The idea of personal protection was therefore evolved. This resulted in the provision of goggles, gloves, aprons, safety helmets and safety boots and was to be the second line of defence to the main armour of machine guarding.

This "guarding and protection" stage gave excellent results; better results in terms of percentage reduction in accident rates than have ever been obtained since. For example, in six years the American all-industry accident frequency rate dropped almost 60 per cent; from 31.87 disabling injuries per million man-hours in 1926, to 12.46 in 1932. The next twenty-six years produced a further reduction of only 20 per cent on the original figure.

During this guarding and protection phase, the responsibility for the safety programme was largely in the hands of the individuals. In the large factories full-time safety officers were appointed; in small firms some officer had safety responsibility added to his duties. Safety committees came into being and safety meetings were arranged. These activities played their part in arousing and maintaining a general interest in accident prevention. These meetings were of great assistance to the safety officer in that they offered him a very convenient medium through which, by personal contact, he was able to get a lot of the more obvious things rectified. More safe-working requirements were brought into being by Acts of Parliament or amendments to existing Acts.

Arising out of this activity the safety officer was fully occupied in seeing that machinery and work methods were brought up to the specified standards.

The emphasis was on the safety specialist; the production management and in particular the first-line supervisor had little or no part in the accident prevention scheme. He felt that accident prevention was the safety officer's job because he, the supervisor, didn't know or understand how he could do anything about preventing accidents. Despite the good results obtained from this phase of safety development, it soon became apparent that although this

"guarding and protection" approach was very successful, it was by no means the ultimate answer. Men were certainly less likely to catch their hands in the moving parts of machinery, but they could still slip on oily floors, fall off ladders, drop things on their feet, and hit against objects. The spotlight now turned on the human element, the men who operate the machines; the men whose human frailty often nullified the work of the safety engineers. It was realised that the "best safety device is a careful man" and this concept led to the introduction of the third phase in the development of the safety movement, the "mass media" stage.

"MASS MEDIA" PHASE

This phase is concerned with influencing the minds of men by means of television, radio, newspaper articles, other popular reading material, supported by means of safety posters, slogans and safety bonuses (both small and continuous, and large and spectacular). This phase is a continuing one and is commonly used in conjunction with each of the other phases. As an approach to the accident prevention problems, the "mass media" phase is one which, once started, is very difficult to stop. The reason for the difficulty is that, although no-one knows how much good this approach does, one is reluctant to reduce or stop it for fear of the consequences. This approach is a very demanding one on those people concerned with administering the safety programme, as new ideas are required from time to time. New ideas must be thought up, but the effect of each new idea is short-lived. The effectiveness of this approach on its own can be gauged by the not infrequent observations, for example, that men have been injured within sight of posters warning against the type of injury suffered.

Bonus schemes perhaps serve a useful purpose in keeping the safety consciousness of men activated if in only a small way. They are most commonly based on relatively cheap but useful articles as awards and the periods set for their attainment are usually limited to between one and two months. One bonus scheme of a longer duration between awards, with spectacular prizes (like cars, radiograms, etc.), failed to achieve anything in the way of long-term additional safety consciousness.

RESPONSIBILITY AWARENESS PHASE

The fourth, and to date one of the most effective, is the "responsibility-awareness" phase.

This is the phase in which most of the leading companies in the field of safety are now actively engaged.

The first and by far the most important concept in this phase is the attitude that safety comes from the top down, rather than from somewhere in the middle and lower levels. In other words, the safety campaign is based firmly on the direct, active and personal drive of top management.

FORESTS DEPARTMENT safety policy is fully and clearly set out in the safety section of the Forester's Manual.

This leads to the next important concept—the acceptance by all-line management levels of the responsibility for the safety of their own men. This highlights the importance of the overseer in this phase. As the first line of supervision in daily personal contact with men, his is a most important role in the maintenance of safety standards, in the safety education of men as well as in the maintenance of safety awareness in day-to-day work.

The techniques used in this phase of safety development include:

Training supervisors to develop their skill in accident prevention.

Making supervisors primarily responsible for accident prevention.

Thorough safety induction.

Systematic safety inspection.

Personalised safety instruction.

Intense accident investigation.

Regular safety contacts.

Participative safety committees at various levels to facilitate both upwards and downwards safety communication.

These "responsibility-awareness" techniques, if used with intelligence and determination, are capable, depending on the type of industry concerned, of giving frequency rates of the order of 1.0 to 3.0.

SUMMARY

From a study of the history of the development of accident prevention in industry up to the present, four distinct phases emerge:

(1) The development of management awareness in regard to the need (most firms and organisations are nowadays well aware of the necessity for some form of safety programme). In America between 1900 and 1920. In Australia about 1921.

(2) Guarding and protection—with excellent results regarding percentage reductions in accident frequency rates. The main burden was borne by the safety specialist. With intense application of this phase it was possible to obtain and maintain accident frequency rates consistently between 20 and 30. In America between 1920 and 1935. In Australia from 1924.

(3) Mass media—used in close conjunction with "guarding and protection", mass media techniques can maintain accident frequency rate figures between 12 and 20. In America between 1935 and 1953. In Australia from shortly after World War II.

(4) Responsibility awareness—to obtain results significantly better than 12. The application of this phase is essential and it has been in operation in a number of firms for up to 12 years. Firms that have adopted these techniques have reported spectacular success. Using these techniques it is possible to obtain and maintain an accident frequency rate of 3 consistently, and sometimes down as low as 1.0. Since 1953 in America. In Australia since 1951.

Let us now look at recent improvements in the safety record of W.A. Forests Department.

W.A. FORESTS DEPARTMENT'S SAFETY RECORD

In 1959 Government departments were directed by the Minister for Labour to direct their attention to accident prevention. Subsequently, the Forests Department formed a committee of senior officers who instituted detailed accident recording and met regularly to discuss accident causes and prevention methods. Similar committees were also established in each of the field divisions of the service. There was, however, no marked evidence of improvement following these efforts and it became clear that further and more dynamic action was necessary.

Therefore, while retaining the committees mentioned above, the Department in 1965 instituted a training programme for its field personnel. Officers of the Department of Labour's safety section gave several "package" courses in safety and some foresters were sent to two-day sessions held by the National Safety Council where the principles and benefits of accident prevention were outlined and the management techniques for a successful safety campaign were identified. In 1967, a senior staff officer was given ten weeks' training at the National Safety Council and was charged with the full-time responsibilities of training and the field promotion of a well-planned safety programme.

An immediate and spectacular improvement was noted. Time lost through disabling injury accidents has shown a startling drop from an average of 2896 days in 1959-1966 to 275 in 1972. A SAVING OF 12 MAN-YEARS. This result brings with it many benefits, both tangible and intangible:

Twelve less men are required to do the job, with a consequent saving in equivalent overheads.

Twelve less houses are required.

Two motor vehicles with their annual maintenance charges are no longer necessary.

Down time is reduced, together with time lost by workmates associated with each accident.

Less time is spent in training extra men.

Safety training places a spotlight on supervisors, supervision standards and work methods.

Communication between staff and employees improves and there is a marked increase in morale and general efficiency.

Maintenance and care of departmental assets improves as a result of safety demands for good housekeeping and the removal of hazards.

Peace of mind for management, the worker and his family results in improved employee-employer relationships.

Economically there have been major savings from safety. Uninsured costs of accidents such as delays, interruptions to work, etc., are considerable and it has been estimated that the reduced accident occurrence has resulted in these costs being reduced from $165 000 to $100 000 per year.

Insurance rates for accident compensation have dropped from 4.5 per cent to 2.5 per cent. This year, 1972-73, there will be $30 000 less paid in insurance premiums for accident compensation compared to 1967 when the campaign was initiated.

The safety programme is costing about $20 000 per year, so that in 1972 safety produced a net saving of about $75 000.

Explanatory tables are attached.

Table 1 shows, *inter alia,* the reduction in man-days from 2896 to 275 and the fall in accident frequency from 100 to 23 over the five-year period of the safety programme.

Table 2 indicates that of the 13 field divisions of the Forests Department, all have achieved over 50 000 hours free from disabling accidents, nine have reached 100 000 hours and two have reached 250 000 hours, to March, 1973.

TABLE 1

National Safety Council Awards Won by W.A. Forests Department Divisions
(To June, 1973)

Divisions	Man-hours Worked Without Disabling Injury		
	50 000	100 000	250 000
Mundaring	★		
Dwellingup	★	★	
Collie	★	★	★
Kirup	★	★	
Manjimup	★	★	
Kelmscott	★		
Wanneroo	★	★	
Harvey	★	★	★
Pemberton	★	★	
Nannup	★	★	
Walpole	★	★	
Busselton	★		
Collier-Somerville	★		
Total	13	9	2

TABLE 2

Statistics Summary

	1961–67	1967–68	1968–69	1969–70	1970–71	1971–72	1972–73
Disabling Injury Accident/Year	184±16	124	96	70	48	41	45
Manpower	904	908	1,000	980	988	962	925
Hours Worked/ Year	1,808,000	1,895,000	2,020,000	1,901,020	1,808,406	1,759,888	1,728,577
Frequency Rate	100+	64	48	37	27	23	26
Man-days Lost/Year	2,896	1,701	1,738	721	458	275	414

CONCLUSION

The study of the history of the development of the accident prevention function clearly indicates two things:

(1) That reduction of frequency rates to approximately 12.0 at the best can be made by the application of the phases of "guarding and protection" and "mass media".

(2) That lower frequency rates can only be achieved when supervisors, with top management backing, assume responsibility for accident prevention, and are trained in the necessary techniques.

However, in working towards greater job safety we must never forget the cost of failure. No fewer than 10 men of the West Australian Forests Department have been killed in accidents.

CHAPTER 3

Responsibility and Economics in Accident Prevention

WHOSE RESPONSIBILITY IS SAFETY?

Safety in industry is a management responsibility. The supervisor as part of management shares this responsibility. The overseer, as the basic supervisor, is in close daily contact with the worker, who will therefore gain his impression of the meaning of safety from what the overseer says and does—particulary what he does.

So, no matter what safety policies are decided upon in Head Office, the safe working standards are only as good as the supervisors, including the overseers, can, or will, allow them to be.

It is no idle statement that the supervisor is the key man in accident prevention. Nor is it just a catch cry of the safety propagandists that a good safety record goes hand in hand with efficiency. Safe working conditions are a definite sign of the efficiency that gets good results in sawmills, aerial burns, logging projects and other forestry work.

Let us consider the responsibilities of the three groups most concerned.

(1) *Management*—i.e., staff above divisional level.

(2) *Supervisors*—i.e., divisional staff and overseers.

(3) *Workers*—i.e., gang workers and their equivalents in other sections.

RESPONSIBILITIES

1. **Management**

Establish safe working conditions.

Establish safe practice rules.

Provide adequate equipment.

Institute an effective maintenance and inspection service.

Select and train suitable employees for the job.

Provide efficient lighting, heating, ventilation and sanitary services.

Provide efficient and adequate supervision.

Budget for effective housekeeping.

Provide adequate physical safeguards (guards, etc.).

2. **Supervisors**

Provide adequate training of employees.

Provide supervision of employees. Correcting unsafe practices immediately and consistently.

Ensure adequate time allowance for the job.

Minimize excessive haste and speed, as these lead to fatigue and clouding of judgement.

Impartiality.

Sufficient help and instruction—curb over-zealousness.

Good housekeeping—cleanliness and tidiness are akin to safety.

Correct unsafe practices, horseplay, joking and larking.

Enforce safe rules and regulations.

Ensure full use of all safety aids provided.

Set a good personal example.

3. **Workers**

Good attitude.

Follow instructions—no "short cuts". If instructions not understood, ask again.

Keep guards in place.

Wear proper clothes and protective equipment.

Report all hazards, "near misses".

Always get first aid, no matter how slight the injury.

Mature approach to job—outlaw horseplay, recklessness, perverseness, carelessness, untidiness, etc.

It is true that certain conditions can cause accidents, also that some combinations of conditions make accidents inevitable. It is also true that responsibiliy can be assigned and correction ensured.

ECONOMIC ADVANTAGES OF ACCIDENT PREVENTION

Let us consider the costs of accidents to the three groups most concerned:

(1) Management.
(2) Supervisors.
(3) Workers.

1. Management

DIRECT COSTS OF ACCIDENTS

(i) Compensation.
(ii) Medical, hospital, first-aid, ambulance.
(iii) Specialists' salaries, publicity, protective equipment and clothing.

INDIRECT COSTS OF ACCIDENTS

(iv) Damage to equipment, tools and machinery.
(v) Spoilage and waste of materials.
(vi) Staff replacement and training.
(vii) Production losses—IMMEDIATE.

This includes:

(a) Workers stop to aid fellow workers.
(b) Workers stop out of sympathy, curiosity and to discuss events.
(c) Workers stop because of shock—"it might have been me".
(d) Workers stop through loss of "key" man.

2. Supervisors

(i) Supervisors arrange assistance for injured workers.
(ii) Supervisors must train new worker.
(iii) Supervisors re-arrange staff.
(iv) Supervisors re-arrange work processes and continuation of injured employee's work.
(v) Supervisors investigate cause of accident.
(vi) Supervisors prepare accident reports.
(vii) On return to work—rehabilitation period and loss of efficiency.
(viii) Further re-arrangement of staff (disgruntlement).

3. Workers

Immediate loss of wages (overtime, bonus rates, allowances).

Injury comforts, fares for treatment.

Reduced financial ability to meet normal family expenses, such as—

Clothing replacements.

Additional education for children (music, art, elocution, singing, dancing).

Through permanent partial disablement sometimes lesser pay because of change of job to lower classification on his return to work.

In addition to the above there is the actual *pain and suffering* which cannot be assessed in terms of money. Nor can the frustrations of the worker's wife who must face up to "doing without", because an invalid in the home increases "wasteful" expenditure.

These costs can never be recovered by the worker, as he can only ever draw his full rewards when he is fit. It is no fallacy to say he suffers his accident at his family's expense.

PRODUCTION NEEDS PEOPLE

Responsibility for getting production, for getting the job done, is accepted without question by the supervisor. It becomes part of his job to endeavour to overcome any and all of the difficulties that are likely to arise in getting the work out. Such setbacks as—

Material shortages.
Restricted power.
Insufficient or unsuitable operatives.
Absenteeism and labour turnover.

Singly or in combination, these provide plenty of problems for the present-day supervisor.

While none of these is likely to be eliminated, much can be done by making the best of what is available. Particularly so in regard to man-power.

In spite of the development of machine tools and multiple machine tools, it still takes people to get work done. People not merely on the Department's books, but on the job under the direction of competent supervision.

That is why every accident on the job which lays a man off work—or even brings in the need for some first aid treatment—is a direct interference with productivity and in turn makes the supervisor's job that much harder.

ACCIDENTS COST MONEY

There is a popular opinion to the effect that because the Department pays out money in workers' compensation that this is the sole cost of on-the-job accidents. Nothing could be farther from the truth. The fact is that such amounts represent only a small PROPORTION of the total costs of industrial accidents.

The Department expects its supervisors to be cost-conscious. Costs must be kept, as far as possible, within prescribed limits. The supervisor who is interested in efficiency will be well aware of the adverse effects that accidents have on costs.

Such a supervisor who recognises that accidents MILITATE AGAINST PRODUCTION, INCREASE LABOUR TURNOVER, RAISE COSTS AND CONSUME HIS TIME, will be vigilant for safety in his department and will not be stampeded from good standards of safe working by production demands or labour difficulties.

CHAPTER 4

The Need for Accident Prevention

This is the age of *modern* management and methods. The manager of one of Western Australia's large manufacturing firms stated:

> The industrial accidents and injuries are an expression of the inefficiency of the organisation, of its management and of all who work in it.

The need for "accident prevention" is made very clear if we consider the heavy costs which must be borne by the victim of an accident, the State, the organisation and the man's supervisor, as a result of an accident.

COST TO THE VICTIM

This may be summed up briefly as suffering, loss of earning, extra expenditure, continuing disability, incapacity to carry out the same type of work as previously, incapacity for activities outside his normal work and the consequential effect of these things on the victim's dependants. Some of the items mentioned can be measured in terms of money; others may never be made good or compensated. The victims of industrial accidents know only too well that social insurance benefits and other forms of compensation can never make good, in full, the various losses arising from accidents; thus the implementation of positive measures to prevent accidents is fully justified on humanitarian grounds alone.

COST TO WESTERN AUSTRALIA

Estimates based on statistics for the year ended 30th June, 1972, show that in Western Australia 374 860 man-days were lost; more than 29 685 were injured, and 18 people died, all as the result of industrial accidents.

$5 725 154 was paid out in claims for wages lost, hospital and medical expenses and lump sum settlements. Indirect costs (ratio 4 : 1) amounted to $22 900 616, giving a total annual cost of industrial accidents in Western Australia exceeding $25 million or $842.00 per accident!

COST TO THE SUPERVISOR

Suppose one of your workers is injured as the result of an accident; have you considered how that might affect you as the supervisor? Accidents, whether they cause personal injury or only property damage, destroy efficiency and, furthermore, they are symptoms that something is wrong. Accidents stem from lack of control over men, materials and processes, and lack of control spells inefficient operations. When an accident occurs it wrecks efficiency, it may hold up a job by damaging a machine or injuring a key worker at the very least, it is sure to pull the supervisor away from whatever job he is doing. First, he has to care for the injured worker; it may take only a few minutes or it may take some hours of his time; then a replacement worker has to be found, and possibly trained, to carry out the work which was being done by the injured man. If equipment has been damaged arrangements must be made for its replacement or repair. If the work is held up for any length of time other sections and other jobs may be affected.

When any of these results occur, the supervisor discovers that many people, who have never worried about safety, can do a lot of worrying about an accident or the consequences of it. It is not just a big accident which causes trouble; a series of minor accidents can keep a section in a state of inefficiency and uncertainty.

Generally, a supervisor has to investigate accidents and make reports; both these duties take time. Of course, since this supervisor is usually on the staff, the time he spends frequently does not show up in the cost figures, and it may sometimes appear that no one worries about it except the supervisor himself. If, however, he spends so much time cleaning up the mess after an accident that he misses out on some other part of his job, he may find himself having to make weak excuses for failing to get his work done. So, to sum up, it may be said that the effects of an accident on the supervisor are to cause him worry, extra work (reports and training substitutes, etc.) and loss of prestige.

CONCLUSION

It may be seen that accidents result in waste in many forms and are not to be tolerated.

We have probably quoted sufficient facts and figures to indicate that it is essential that all personnel must work together to prevent accidents within an organisation, and it must be again emphasised that the supervisor is in a key position.

CHAPTER 5

What Causes Accidents?

AGENCIES OF DISABLING INJURY ACCIDENTS
DEPARTMENTAL
Based on figures for 1972-1973

	Per cent
Persons falling or striking	24.4
Manual handling	17.8
Objects falling or flying	15.5
Machinery in operation	11.2
Hand tools	11.2
Vehicles and moving plant	6.6
Power tools	4.5
Harmful contacts	2.2
Miscellaneous	6.6

FREQUENCY OF CAUSES

80% Unsafe Acts 12% Unsafe Conditions 8% Unspecified

AGENCIES OF ALL INJURY ACCIDENTS
DEPARTMENTAL
Based on figures for 1972-1973

	Per cent
Persons falling or striking	26.6
Manual Handling	12.8
Objects falling or flying	10.1
Machinery in operation	8.2
Hand tools	10.8
Vehicles and moving plant	6.3
Power tools	6.8
Harmful contacts	7.6
Miscellaneous	10.8

AGENCIES OF INJURIES
ALL INDUSTRIES
Based on figures for 1971-1972

	Per cent
Handling objects	30
Falls	20
Stepping on or striking against	11
Hand tools	10
Machines	8
Falling objects	7
Explosives, Electricity H.C. Burns, etc.	4
Miscellaneous	10

FREQUENCY OF CAUSES

78% Unsafe Acts 12% Unsafe Conditions 10% Unspecified

WHAT CAUSES ACCIDENTS?

People are at fault

Let us refer to our previous definition of an accident, with an addition to it.

An accident is an unplanned, non-controlled and undesirable event caused by unsafe acts and/or unsafe conditions, and resulting in an interruption to work activity and damage to property and/or persons.

A personal injury occurs as the result of an accident.

An accident occurs only as the result of—

(a) unsafe acts and/or
(b) unsafe conditions.

Unsafe acts and unsafe conditions exist only because of the *faults of persons.* Faults may be—

(a) physical or mental unsuitability;
(b) faulty mechanical or physical environment;
(c) lack of knowledge or skill;
(d) faulty attitude.

Unsafe act is defined as a departure from an accepted, normal or correct procedure, an unnecessary exposure to a hazard, or conduct reducing the degree of safety normally present.

Not every individual unsafe act produces an accident. But sooner or later, the repetition of an unsafe act will produce an accident, eventually an injury accident.

Unsafe conditions is defined as any faulty physical condition that, if left uncorrected, may lead to an accident. A faulty physical condition may exist for a long time before it causes an accident, but sooner or later an accident is almost certain to happen.

Let us consider in turn the faults of persons described above.

(a) Physical or mental unsuitability

Permanent—hearing, sight, age, height, lack of strength, slow reactions, poor co-ordination, lack of dexterity.

Temporary—illness, fatigue, mental stress.

With proper selection and placement of employees, there should be no person in the Department permanently physically or mentally unsuited. Employment officers make mistakes, as we all do, so supervisors must watch and assess all new men in order to identify and replace any that are unsuitable with the minimum delay.

Temporary unsuitability, through illness, worry, extreme fatigue, such as at fires, may occur at any time, and supervisors must be alert for the signs and correct by a temporary change of duties or by recommending to the man that he should seek medical advice.

(b) Faulty mechanical or physical environment

This may be an old vehicle, an outdated item of machinery, lack of space in a store, a steep and slippery bush track, a compartment with heavy prickle bush or a badly lit corner of the workshop. Safety inspections should locate these sources of accidents. If it is impossible to remove them they should be guarded, publicised and safety procedures adopted to counter the hazard arising from them.

(c) Lack of knowledge or skill

A person new to a job will be more liable to have an accident than the experienced man. Proper induction and job training should be concentrated on new employees to ensure their safe working.

Do not forget the experienced employee who is changing his environment—such as an experienced benchman used to hardwood milling who comes into a pine mill for the first time. He has much to "unlearn" before he can be taught.

(d) Faulty attitude

Deliberate chance-taking, disregard of instructions, disregard for safe-working procedures, recklessness, impatience. There is no one simple remedy for this fault. It is the most difficult personal fault to eliminate.

The general remedy is *creating and maintaining safety awareness,* which includes—

(1) induction, training, instruction;
(2) observation, correction and safety contacts;
(3) safety talks, use of films and posters;
(4) leadership—example and persuasion;
(5) discipline—if the other methods are not producing results.

We will consider accident causes and types in more detail later. For the present let us note that *faults of persons create unsafe acts and/or unsafe conditions which create accidents, which sooner or later cause injuries.*

THE REMEDY

Accidents are caused, they do not just happen.

All accidents are caused directly or indirectly by people, hence the basic aim of accident prevention measures must be to influence people to the highest possible degree of safety awareness.

"People" include supervisors—you, as well as your men.

We can now see that our safety organisation and programme must provide for coping with faults of persons by—

proper selection and placement of workers,
temporary placement of workers (to counter temporary unsuitability),
inspection,
observation,
induction,
training,
instruction,
correction,
creating and maintaining safety awareness.

KNOWING WHERE, HOW AND WHY accidents occur is fundamental to an understanding of accident problems and the solving of them. Accidents do not just "happen". With few exceptions, there are understandable reasons for all of them. When the circumstances and causes of an accident are known, measures to prevent similar accidents can be devised in most cases.

Accident results are included with production and costs in judging the efficiency of a department in a modern industrial organisation. Like efficiency in other phases of running a department, effective accident prevention means getting results with the minimum expenditure of time, effort and money. Because numerous factors are involved in the occurrence of accidents, a great deal of time and effort may be misdirected unless a sound accident prevention plan is followed.

Each type of tool, machine and material used in a department is a potential source of accidents under certain circumstances. However, some of these accident sources figure in many more injuries than do others. To achieve a good safety record, sources of frequent injuries must be known and given special attention.

Also, the severity of the injuries varies according to the type of equipment, tool or material and according to the way in which the employee is injured. Knowledge of the likely sources of serious injuries tells the supervisor where to direct his efforts to prevent bad accidents.

THE ELEMENTS OF ACCIDENTS

Minor and serious accidents involving a machine, a tool or other source result from many different causes of which a few account for most accidents. Knowledge of these few causes enables a supervisor to direct his efforts most effectively.

An operator who understands how the parts of a machine work has the basic information for locating trouble and correcting it. Similarly, the supervisor who knows the elements of an accident and how they enter into the occurrence of an injury has a guide for securing the right facts upon which to base corrective action. Furthermore, he has useful information for planning and performing all his safety duties.

There is nothing mysterious or complex about the basic nature of an accident. It can be taken apart like a machine to find out what is wrong. An accident has only five parts or elements. Each element should be disclosed by an investigation and included in a report of the accident in order to have the essential information for preventing similar accidents. These are the five elements:

(1) The *tool, machine, material, type of equipment* involved in the accident, such as axe, chain saw, ladder or piece of sheet metal. One must know the part of the tool, machine or other equipment involved in order to know exactly where to take corrective action.

(2) The *type of accident* or the manner in which the employee was injured, such as a fall, struck by (a falling or flying object), getting caught in or between (the moving parts of a machine).

(3) The *unsafe condition* of the tool, material or machine, such as the broken handle of an axe, unguarded gears of a machine or worn brakes of a truck.

(4) The *unsafe act or unsafe practice* of the employee, such as working on or near the moving parts of a machine without first stopping it, lifting with the back muscles instead of the leg muscles, removing a guard.

(5) The *reason* for the employee's unsafe action or practice, for example, lack of knowledge of the safe practice, disregard of instructions, a physical handicap.

The following description of an accident taken from a supervisor's report concisely brings out the basic facts about an injury to one of his men:

An employee was sharpening a piece of metal on an electrically driven emery wheel.

The emery wheel was unguarded and the employee was not wearing eye protection.

A foreign body flew from the emery wheel and lodged in the employee's eye.

The supervisor's investigation and report of the accident stated the facts *without bias and with no attempt to blame the injured man.* In making an investigation, this attitude is essential if a correct description of an accident is to be secured.

Furthermore, the supervisor's report covered all five accident elements as follows:

(1) The emery wheel was the *type of equipment* involved in the accident.

(2) The flying material was the *type of accident,* or the way in which the man was injured.

(3) The *unsafe condition* was the unguarded emery wheel.

(4) The *unsafe act* that precipitated the injury was using an unguarded emery wheel without eye protection.

(5) The *reason for the unsafe act* was lack of safety awareness in using an unguarded emery stone whilst not wearing adequate eye protection.

IMPORTANCE OF THE UNSAFE CONDITION

The analysis of the accident clearly shows that lack of guarding of the emery wheel was the major cause of the accident. The man would not have been injured, regardless of his action, if the emery wheel had been adequately guarded. Generally, the elimination of an unsafe condition is the most effective measure for preventing a similar accident.

In analysing an accident, *one should always look first for an unsafe condition.* The unsafe practice becomes the principal cause only where there is no unsafe condition or when no safer method of doing the job can be devised. Accidents not involving an unsafe condition, and due entirely to an unsafe practice, often occur when two men are handling materials like pipes or timber. One man drops his end without warning or signalling the other, who loses his grip from the jar and is struck on the leg or feet by his end of the material.

Although substitution of mechanical handling for the manual handling may be the preferred method for elimination of the hazard, it may not be practicable under certain circumstances. In that case, observance of a safe working procedure by employees must be relied upon for prevention of injury until a better method is found feasible.

For example, it may be necessary to lift a part weighing 70 kilograms to repair a machine. The job involves various hazards if only one man tries to handle the part. The work can be done by one man through use of a block and tackle or a hoist, but such equipment would require special supports. Since replacement of the part is infrequent and the job is the only one for which such an installation would be used, the extra work and expense of building supports are not justified.

Two men can remove and replace the part with reasonable safety. Therefore, the most effective safety measure, under the circumstances, is to arrange for a helper on the job. If a hazard cannot be eliminated, then the next best bet is a safe way of performing the work.

While only one unsafe condition or one unsafe practice may be present in many accidents, two or more of each of the causes may be found in others. Painstaking investigation may be necessary to uncover all unsafe conditions or practices, and a careful study of the findings may be necessary to determine the most effective preventive measures. *An inadequate remedy, resulting from incomplete facts about an accident, is hardly better than no remedy at all.*

No completely effective or practical method has been devised for eliminating a certain few hazards in the operation of some kinds of machines, in the use of various kinds of tools, and in the performance of work involving exposure to harmful dusts and other substances. Typical of such hazards are flying particles accompanying the operations of a lathe or a grinding wheel or use of hammers and other striking tools.

Since it is impracticable to eliminate the flying particles, efforts must be directed at preventing injury from them. The eyes often are endangered; so eye protective devices, such as goggles, have been developed.

Likewise, hand leathers and leather-faced gloves are worn by men who handle timber to prevent injuries (from splinters) which cannot be readily eliminated.

Respirators furnish protection from dusts and other harmful substances in the air when methods of removal are not practical. Other types of personal protective equipment have been developed to prevent injury when exposures are difficult to control. Where such equipment is needed, lack of it is considered an unsafe condition, and failure of employees to use it, an unsafe practice.

The most effective measure for preventing an accident should be taken. Often the circumstances of an accident which results in a minor injury are similar to those of an accident which results in permanent disability. One employee may sustain only a slight cut on the cheek when struck by a foreign body flying from an emery wheel; another worker may lose the sight of an eye from a similar accident.

Progress can be made by eliminating a hazard here, an unsafe practice there, in a hit-and-miss fashion, but the more effective procedure is first to put the finger on the most likely sources of injury and concentrate on making them safe. The practical thing to do is to put extra time and effort where the largest gains can be expected.

CHAPTER 6

Creating and Maintaining Safety Awareness

Introduction

You cannot supervise one of your men, every minute of the day, let alone your whole team. Hence each man must, within certain limits, act largely on his own initiative and his safety, and the safety of his fellow workmen, will depend much of the time on his own safety sense, on his safety awareness.

WHAT IS SAFETY AWARENESS?

What a man does in the varying situations of his daily life depends upon what he has learned from his past experience, including of course his work training. One factor in safety awareness is *Safety Knowledge.*

The next factor is the extent to which a man applies his safety knowledge to his work generally—that is, his *Safety Habits.*

The remaining factor is a complex one, which can be described as his *Emotional Set.* This depends partly on personal traits (impulsive or cautious, impatient or patient, etc.); but it also depends on the example set to him by management, supervision and workmates, that is, on the safety standards maintained around him.

Good *safety knowledge* applied regularly to produce—
good safety habits together with
the right emotional set (personal traits) plus work safety standards } Produces good safety awareness.

We all know that worry and panic can at times cause a breakdown of the best of safety attitudes and produce unsafe acts. Nevertheless, with stronger safety awareness, the greater will be the chance that a man will act safely in periods of stress or pre-occupation.

Creating and maintaining safety awareness is, therefore, a matter of creating and maintaining—

Safety knowledge
Safety habits
Safety standards.

by all suitable methods.

Some of the methods we have to consider are—

Induction
Works training
Inspection
Housekeeping
Observation
Safety contacts
Consistent and impartial supervision
Enforcement of safe working practices and rules

SAFETY PUBLICITY

There are a number of methods we can conveniently group together under Publicity.

Films—Many good safety films are available, and more become available each year.

Posters and Slogans; Safety Bonuses and *Safety Records Board*—all play a part.

The display of interesting safety objects—damaged glasses hats or boots, that saved injury, with details of the accident—can be very useful.

The value of all forms of safety publicity is greatly increased if supervisors refer to them, introduce them and use them in safety talks to individuals and groups.

EMPLOYEE PARTICIPATION

Stimulates awareness. Representation at safety meetings should be rotated so that all employees attend.

Your men should be encouraged to make safety suggestions, and you should pass them on.

Some workers can be used as your assistants in making inspections.

SAFETY MEETINGS

Each division and each section should hold regular safety meetings as prescribed in the Forester's Manual.

Consider accident injuries experienced during the period under review—how they were caused, where they were caused, what has been done to correct the causes.

Consider the divisional safety record and current safety standards—the results of yours (and other's) inspections and observations.

Consider suggestions and complaints.

Introduce new safety standards—rules, methods, procedures, protective equipment.

If time permits, and on every occasion when you are fortunate enough to have dealt with the above in quick order, show a film or give a *topical* safety talk.

Correct misunderstandings and conflicts. The best intentions of management tend to be misunderstood at the worker level. Action, or non-action, by management may be viewed with indifference, suspicion, distrust, or outright hostility, largely because of the lack of communication. Your meetings should bring these feelings out into the open.

SAFETY TALKS

The following refers specifically to talks given to a group in a safety meeting. The principles are the same, and minor modifications only are required for making safety contacts or giving a talk to a small group at any time during work when circumstances permit. For example, the D.F.O. or Safety Officer in the course of a visit to a gang or section calls the men together and informally talks to them on a safety topic. This might be on the importance of safety in controlled burning and how to achieve it or, in a workshop, the need for eye protection.

Why are safety talks necessary?

Job safety training needs to be supplemented by safety talks for a number of reasons.

Job procedures change

Plant processes are constantly undergoing changes. Improved work methods are adopted. New types of tools are employed. Modifications in machinery and equipment occur. The actual physical layouts of the work areas undergo change. New types of materials are used. Such changes often bring about new kinds of unsafe conditions and make new kinds of unsafe acts possible. Men must learn what these changes mean in terms of new accident possibilities.

Men adapt themselves to hazards

When most men are first acquainted with hazards and injury possiblities they regard them with some respect and act accordingly. But as they experience these hazards without injury, and as they learn that unsafe practices don't inevitably mean accidents, they lose their sense of caution. When such attitudes develop, accidents happen more frequently. Safety talks tend to counteract this. They keep them "safety conscious".

Men forget the safe ways

Some jobs are not done as frequently as others. Often weeks, even months, separate doing the same job twice. When men return to the jobs they have worked at for some time they have often forgotten some of the safety precautions learned previously.

Men learn unsafe ways

Learning does not stop after job training. Men learn on their own. Most often what they learn is to the good. Sometimes, however, they learn things that they would be better off without. They learn unsafe short cuts in their work. They learn to do things in ways that are less strenuous but more hazardous.

Men must be informed about accidents

Despite our efforts, accidents do occur. Every one that has been investigated properly and the actual cause or causes determined has a story to tell. Those men most closely associated with the accident should be informed of the actual cause or causes and instructed in the precautionary measures necessary to prevent a recurrence. It must be stressed that in the event of a major accident the supervisor should discuss this aspect with his O.I.C. before taking action.

Safety consciousness requires repeated stimulation

We all know that it is desirable that men become "safety conscious". We want them to think safety when they approach their work. But this attitude is not established once and for all. It requires repeated stimulation.

These are the main reasons for some form of continual safety training. We want you to be sold on the necessity for supplementary safety training by way of safety talks.

CHAPTER 7

Safety Induction

TREAT HIM AS YOU WOULD LIKE TO BE TREATED

The objectives of the induction of a new employee are:—

(a) To make sure that he has a complete knowledge of the conditions of his employment.

(b) To give him a feeling of belonging—of being a member of a work team.

(c) To give him a feeling of confidence in himself.

(d) To give him an understanding of the importance of observing safety rules.

For this course, we are concerned with the induction commencing with "introduction to the supervisor".

For most people, the first few days on a new job are difficult and trying, especially if it is the first job of work or a new type of work. The new employee must become accustomed to his superior, fit in with a new work team, learn the details of a new job, learn a new works vocabulary, adjust to a new work environment.

He usualy feels awkward, ignorant, and nervous—he feels inferior to all his new workmates.

No one likes feeling inferior, or to be lacking in confidence.

The most important objective in introducing the employee to his new job and surroundings is to eliminate as quickly as possible those feelings of awkwardness, ignorance and nervousness which make him feel so inferior.

With the new employee, the most important single moment in the induction process is that in which he meets you, his supervisor. More can be done to make or mar the new employee's future during his first few days, and especially during his first meeting with you, than in weeks at any other time.

These impressions will form a general picture in his mind which is so strong that in most cases it will never leave him.

What will the overall pattern be? Will there be aroused in him a feeling of friendliness and a desire to co-operate? Or will his reaction be a desire to escape at the first available opportunity? Or, what is worse, to stay on indefinitely in a disgruntled, unco-operative state?

Every word of welcome, of encouragement, of re-assurance, especially from his supervisor, and most especially on first meeting his supervisor, will count much in building that loyalty to both the Department and his supervisor which is so necessary for the best work.

Again, the attention paid to safety at this stage is the foundation on which the safe working habit of the new man will be formed. The new employee is normally anxious to make good, so he is far more receptive to safety information and safety ideas than he will be after he has become reasonably at home in his job. If too little attention is paid to safe working practices and procedure he will assume that he, too, need pay little attention to such things. If he is later pulled up for slackness in safeworking habits, he will be bewildered and resentful. This causes ill-feeling and bad discipline.

But if too much emphasis is laid on safety, initially the new employee may form a bad impression. His reaction might quite easily be, "This is a very dangerous place to work in", with a consequent bad first impression which is very difficult to eradicate. If too much safety training is attempted the first day or so, the man will absorb, understand and remember only a fraction of it.

Safety induction cannot be achieved in one day—the first induction must be followed up, at first frequently, subsequently at intervals.

During his first few months the new employee can be injured through his lack of knowledge. What he doesn't know might include:—

The general danger of working in the bush, *e.g.*, dead limbs, obstacles, gravel roads.
Safe methods of working.
Special safety measures such as danger tags.
Proper use of personal protective equipment.
Danger resulting from incorrect use of gear and equipment.
Hazards arising from worn or faulty equipment.
Hazards to and from workmates working too close in the bush.
Hazards from mobile equipment.
Hazards from carrying a number of inflammable liquids on the gang truck.

We don't want to overload him with safety information. We do not want to scare him. But we must try to fit him into the job and into our work team with a minimum of danger to himself and his workmates.

The best method is to build on from the general induction tour, according to where the man will be working, and the type of work—

Emphasize any points from the tour guide of particular application.

Explain how his work affects the other people in his gang, especially as regards hazards, and *vice versa*. Instruct him in his own job, using the appropriate job instruction guide. As you take him around, introduce him to other employees, especially those with whom he will work most closely.

He may not remember many names, but he may remember faces and will be more at ease.

Give him a "mate"—someone of the right type, not necessarily his nearest workmate, who can be relied upon to keep an eye on him and answer queries, introduce him to others, etc., until he finds his own feet.

Encourage him to see you if he has any doubts or difficulties. Stress that he must report all injuries to you, no matter how slight.

THE NEXT STEP IS THE FOLLOW-UP

Much of what you told the man on the first day will not be remembered. You must keep checking up on him, and giving time to him, frequently for the first month. If you don't, your first efforts will be largely wasted, and he will believe you have no real interest in him—that you merely went "through the motions" for one day only.

If you do follow-up, the new man will know that you have a genuine regard for his welfare. You will find the time given up to him more than saved in the future from better work performance and less interruptions to work.

THE EXPERIENCED NEW EMPLOYEE

The experienced new employee, especially if he is a skilled tradesman, may present a different kind of problem. Far from being timid and nervous he may be over-sure of himself, and feel that since he has worked in many jobs he knows how to take care of himself anywhere. In actual fact, he may be more liable to injury than the green, new employee, because of his over-confidence. Unless he has had good safety education and training before, he is likely to have unsafe habits of which he may not even be aware. He may be a problem in that he will resent correction and the enforcement of safety rules. In dealing with him, remember that the best way to break a bad habit is by substituting a good one in its place—and that habits of action are only acquired through repetition.

CHAPTER 8

Systematic Safety Inspections

THE UNSAFE ACT

Earlier we defined an accident as an unplanned, non-controlled and undesirable event caused by unsafe acts and/or unsafe conditions.

Faults of persons give rise to unsafe acts and unsafe conditions which cause accidents and sometimes injury.

Let us now look closely into the ingredients of an injury accident—at the different factors involved.

Now Jim's *injury* was a badly bruised leg.

His *accident* was he slipped and fell.

The immediate cause of the accident was a patch of oil on the floor of a gang truck.

The other causes we call *contributing* causes.

If the immediate cause, the patch of oil, had not been there, Jim would not have had this particular accident.

Again, if any one or more of the contributing causes had not existed, Jim either would not or might not have had this accident.

But some of the contributing causes, even without the existence of the direct cause (the patch of oil), might have resulted in another accident to Jim—e.g., he might have tripped over anything else on the back of the truck.

Now we can further group immediate causes and many contributing causes into unsafe conditions and unsafe acts.

In this accident the unsafe condition is the patch of oil.

The unsafe acts are:

(i) Jim did not watch his step—he was not alert. He did not recognise the hazard.
(ii) Someone did not clean up a patch of oil he spilt.
(iii) A number of persons, including the supervisor, took no action to clean up the oil.

It is important to note that (ii) and (iii) resulted in the unsafe condition which was the immediate cause of the accident.

The great majority of unsafe conditions arise from previous acts of one or more persons.

This emphasises once again that it is people, the faults of people, intentional or unintentional, that cause both unsafe acts *and* unsafe conditions, and hence accidents.

Some contributory causes are neither unsafe conditions nor unsafe acts—they are contributing factors.

For example: the way Jim landed on the floor;
pressure of production;
production delays—partial control.

Similar contributing factors exist in every accident sequence. The important thing to realise is that these factors on their own rarely, if ever, cause accidents.

Faults of persons—unsafe acts and unsafe conditions—must exist as well before an accident happens.

Summarizing, there appears to be four distinct parts in an injury accident:

(1) **Contributing causes**
—almost entirely faults of persons; some can be remedied;
—unsafe acts;
—contributing factors.

(2) **Immediate causes**
—unsafe acts, i.e., faults of persons;
—unsafe conditions, which usually arise from previous unsafe acts, again the faults of persons.

(3) **The accident**
—in the above, slip and fall.

(4) **The result of the accident**
—personal injury;
—damage to property;
—interruptions to work activity.

In the early stages of accident prevention, people concentrated on removing the immediate causes of accidents. This had good results, but accidents still happened, though less frequently.

More and more attention was then paid to the correction or elimination of the unsafe acts which make up the bulk of the contributing causes of accidents. The natural development of this line of attack was to ascertain WHY people act unsafely; WHY even trained experienced people literally seek injury by performing some unsafe act, when all the time they know it is unsafe.

Today, experience has shown that successful accident prevention can only be achieved by a combination of efforts directed towards—

removing immediate causes of accidents,
correcting unsafe acts, and
correcting the basic causes that induce people to commit unsafe acts.

The basic causes of unsafe acts which are faults of persons can be grouped thus:

Permanent conditions of persons—aptitude.
Temporary conditions of persons—temporary disabilities, training, motivation.
Deficiencies in supervisory safety performance.

In detail these are:

Permanent condition of persons (aptitude—physical or mental unsuitability)

Lack of co-ordination.
Slow mental reaction.
Lack of emotional stability—temperamental.
Nervous condition.
Physical handicaps.

Some employees may have permanent disabilities that do not prevent the satisfactory performance of their regular job, but which could lead to an accident if they were elsewhere employed in an emergency such as a fire.

Such disabilities (such as partial deafness, colour-blindness, reaction to smoke) must be recognised and recorded on the Gang Record Sheet if it is necessary to send such men to another Division.

Temporary condition of persons

Temporary disabilities

Extreme fatigue.
Illness.
Alcoholism.
Inattention through worry, etc.

Training

Lack of knowledge.
Lack of skill.

Motivation

Improper attitude to safety or lack of safety awareness.

Supervisory safety performance

Safety instruction inadequate.
Work training inadequate.
Safety rules not enforced.
Safety not planned as part of the job.
Infrequent employee safety contacts.
Hazards not corrected.
Inadequate safety inspections and observations.
Safety devices not provided.
Faulty job placement of employees.

It is most important to note that each and every one of the temporary and permanent conditions of persons CAN and SHOULD be corrected or countered by supervisors and/or management if their safety performance is adequate in all respects; with the proviso that time and opportunity may be too limited to correct some of them before an accident occurs.

Countering and eliminating these basic causes of unsafe acts, many of which create unsafe conditions, is, in the long term, the most effective method of accident prevention. Time and effort are required, but the results are cumulative.

For example, if a supervisor removes an axe left unprotected on the gang truck, he may have prevented an accident.

But if he trains his men never to leave axes lying around ready to cause accidents, he has eliminated one complete source of accidents. This is the difference between attacking immediate causes and attacking basic causes.

For the present let us note that our accident pattern now looks like this:

Basic causes (faults in persons) give rise to—
(contributing causes) (unsafe acts)
(immediate causes) (unsafe conditions) which result in accidents,
which result in—
personal injury,
damage to property,
interruptions to work activity.

Injuries always result directly from accidents. But we must not confuse the accident with the result.

The unexpected physical contact, which is the accident, and the consequences of that accident are two separate and distinct happenings.

EXAMPLES

(1) Joe Smith tripped and fell over a piece of structural timber lying on the mill floor. He felt a little embarrassed as he got up and dusted himself and looked to see if his workmates had observed the incident.

(2) Tom Jones tripped and fell on the exact same piece of wood. He scraped some skin off his knuckles when he hit the floor. He lost about 30 minutes' working time while he got first-aid.

(3) Harry Brown slipped and fell on the exact same unsafe floor condition. He landed hard and awkwardly. He didn't get up. His hip was broken. He spent a long period in hospital because the fracture didn't heal very fast. He was past 60 years of age.

In the above examples the basic type of accident was the same; they were all tripping and falling accidents. In each case, however, the results were different.

(1) No injury.

(2) Slight injury.

(3) Serious injury.

This emphasises to us the same type of accident brought about by apparently the same conditions may have entirely different results. The condition that produces today's slight injury may produce tomorrow's serious injury.

This is one of the reasons why every accident should be investigated and the cause remedied. Every accident, however minor, contains a warning, and unless the warning is heeded, and corrective action taken, an injury, and sooner or later a major injury, will result.

In accident prevention we must always look for, identify and, wherever possible, correct all accident causes—

immediate causes *and* contributory causes;
unsafe acts and unsafe conditions;
and especially the basic causes which produce unsafe acts and conditions.

UNSAFE CONDITIONS

In the job safety programme we are informed that to prevent accidents we must safeguard the work area, the work method and the worker, by spotting the danger and taking action to control it. The supervisor, in the early stages, may have some difficulty in applying this method and will be looking for tools to help him in his efforts to spot the hazard.

Nature of accidents

Most accidents have certain things in common—they are unexpected and involve physical contact between a man and an object or a substance, or some form of exposure.

An accident is an unexpected contact. Then it follows that if the contact was expected, the man would either—

have not done what he did, or
he would not have been in the position that he was in.

When we expect something unpleasant to happen to us, we usually *take some action to avoid* it. When a man suffers from an accident injury, we can be fairly sure that his actions before the contact were not based on an expectation of it.

This tells us something important about how to prevent accidents. It becomes obvious that the more aware a man is about the hazards involved in the job he is doing, the more likely he is to take some preventive action.

Anything we can do to get a man to realise that an action on his part will result in injury to himself, the less likely he will be to take that action.

Putting it another way, we must, therefore, MAKE THE UNEXPECTED EXPECTED.

Basic types of accidents

Almost all accidents involve something contacting a man.

These happenings generally involve the man and some solid object. These objects may be tools, materials, machines, structures, and so on.

He may also come in contact with fluid substances. These substances may be injurious liquids like 2,4,5-T or Tordon.

He may be injured through an "exposure" following proximity to extreme heat, in the course of fire suppression.

One common accident injury which does not involve a direct contact is the strained back muscle. In this case, there is no direct contact which causes the injury, but it can be considered as an exposure to injury through the use of incorrect work methods.

The four BASIC CONTACTS are:

(1) Caught on, in, or between.

(2) Struck by or against.

(3) Fall below or to foot level.

(4) Exposure.

These basic types of contacts account for the majority of our accident injuries and it is important for supervisors to know where they may arise, so that, by taking action to prevent them, accidents can be avoided.

Eliminating unsafe conditions

A considerable number of unsafe physical and mechanical conditions which are likely to cause accidents exist in the work area. Bush working is completely different from factory working, in that it is impossible to remove unsafe conditions over the whole forest area. The supervisor must concentrate on instilling into his gang safety awareness, the correct use of protective equipment and safe working procedures.

It is the supervisor's responsibility to regularly inspect his work area and ensure that these unsafe conditions are eliminated.

Accident prevention by supervisors is primarily the action they take to remove and control the unsafe condition in their work area.

The following list sets out what the supervisor can do to eliminate the most common of these factors which occur mainly in our workshops, sawmills and stores area, and so help to prevent accidents from occurring in the work areas under his control.

(1) **Dangerous machinery**

Ensure the following areas are properly guarded:
- Transmission machinery, exposed gears, belts, pulleys, chain drive, and belt drive.
- Exposed shafting.
- Grinding wheel in machine shop.

Ensure all guards are in position before machine is started.
Ensure that emergency stop buttons are suitably spaced on all large machines.
Starting equipment should be so placed or guarded that it cannot be started accidentally.
Make other areas safe, e.g., cut off protruding bolts and shafts.
Develop safe practices for operating machines, and ensure workers follow them.
Ensure machines are regularly maintained. Adopt preventive maintenance practices wherever possible.
Ensure that when cleaning, lubricating, adjusting or maintaining machinery, it is either stopped or made safe to all people working on it.
Place danger tag on starter button of machines being maintained, etc.
Remember, if an area of danger is exposed long enough someone will get caught in it. You cannot rely forever on people to keep out of these areas.

(2) **Dangerous equipment**

Ensure that equipment used is safe in every possible respect.
Ensure maintenance tools, etc., are in safe working order.
Inspect regularly and repair faulty hand tools, but encourage workers not to use but to report them.
Throw out if unable to mend.
Make sure your men are instructed in the safe use of tools.

(3) **Disorderly and untidy work area**

Make every endeavour to remove hazards likely to cause tripping, slipping or falling.
Clearly define aisles between machines and around storage areas (painted lines). Ensure nothing protrudes into this area.
Introduce cleaning schedule.
Provide bins for waste offcuts and rubbish.
Provide storage racks, shadow boards and cupboards for tools and material.
Develop a good tidy work area—a good standard of factory housekeeping.
Encourage men to adopt tidy habits—a tidy workshop/mill is an efficient workshop/mill.
Keep greasy rags and cotton waste off floor.

(4) **Congested aisles, passageways and doorways**

Keep the aisle clear of materials, work in hand, rubbish and the like.
Keep them clear of hand-trucks and trolleys.

(5) **Poorly lit worksites and passageways**

Provide adequate lighting in all places where persons may work or pass.
Ensure that lighting is sufficient to do the job properly.
Ensure that passageways and dark storage corners are adequately lit.
Eliminate all glare—fit suitable shades on glaring lights.
Shield any highly polished surface likely to reflect glare.
Replace burnt out light fittings quickly.
Keep windows regularly cleaned. (May be hard, but worth while.)

(6) **Poorly stacked or stored materials**

Build stack on a solid base.
Cross tie them—lock, block and make secure.
Ensure that ends are even and do not stick out from storage racks.
Keep work in process neatly stacked—take care it does not extend on to the passageway.
Ensure harmful and flammable substances are correctly stored.
Ensure containers are safe and leakproof.
No flammable liquid left in open-top containers.

(7) **Uneven and broken floor surfaces, and on the floors of trucks**

See that floors are sound and even and in a good state of repair.
Ensure floors are cleaned regularly, free of waste and litter, that they are not slippery, and that oil spots are cleaned off immediately.
Place non-skid checker plates over drains and wet slippery areas.
Fence off holes in floors used for machinery installation.
Pipes running across top of ground.
Slight rises in floor levels.
Sprung boards.
Look out for and attend to—
broken concrete floors, holes, or ruts;
slippery surfaces;
stones lying around yard.

(8) **Ramps, stairs and ladderways, particularly fire towers**

Ensure ramps are slip-proof and that there are no loose handrails.
Ensure they are fitted with toeboards.
Always keep ramps and stairs clear of rubbish, materials, etc.
Ensure that ladders are inspected regularly for worn or loose rungs, cracked or split sides.
Varnish, don't paint.
Place ladders at the correct angle.
Secure feet—lash top. Top should protrude about 1 metre above top rest.
Put them out of the way when finished with.
If on outside work, a flag to attract attention is sometimes a good idea.

(9) **Layout of working areas and machinery**

Provide adequate space for each man to do his work safely.
Make the best possible use of the space you have.
It is a good idea to draw up the way you would like your working areas laid out, and over the years try to work to it.

(10) **Sharp and jagged edges on materials handled**

Remove splinters from tool handles.
Do what you can to fix nails sticking out, broken timbers or metal with sharp or jagged edges.
Ensure gloves are worn.

(11) **Transport of materials by conveyors, job cranes, etc.**

Regularly inspect steel ropes, hooks and lifting gear.
Train men to "keep from under" any crane loads.
Ensure that drivers are trained to drive their vehicles safely, especially around blind corners.
Forklift trucks should be fitted with a safety canopy when working on high stacks.
Pile stores to a safe height—ensure that stacks are secure.

(12) **Electrical fittings and equipment**

Report electrical defects immediately you see them.
Leads—do not let them lie across aisles where they can be run over and damaged. (String over top of aisles, etc.)
Store properly, loosely coiled on shelves or wooden pegs—keep away from oils.
Sockets and plugs—have broken plugs, sockets and switches replaced immediately. (Preferably rubber, not bakelite—it breaks.)

(13) **Harmful and flammable substances**

When handling harmful chemicals and acids, ensure protective gloves, glasses, aprons and trousers are worn.
Ensure they are stored safely.
Prevent spillage—ensure standard safety pourers, containers and cans are always used.

Never leave in open drums.
Containers should be plainly painted and labelled distinctively. Instructions for safe handling should be also clearly printed on the container.
Ensure area is properly ventilated and maintain an adequate supply of fresh air.
Remove exhaust, poisonous, irritant, explosive and otherwise harmful dusts and fumes from the atmosphere.
Avoid, where possible, excessive humidity, heat and cold and sudden variations in temperature—a slight air movement should be arranged where temperature and humidity are high.

(14) **Fire hazards**

Note: This brief section is only meant to cover fire hazards in stores, etc. For fire protection refer to Forester's Manual.
Remove possible fire hazards—engineers' waste, rags, bags, waste and the like.
Ensure containers of flammable liquids are correctly stored.
Instruct your men what to do in the event of a fire.
Ensure fire extinguishers are clearly marked and can be readily seen and found.
Train employees how to use fire extinguishers for the emergency situation likely to occur.
Check and service fire extinguishers at 12-monthly intervals.

There are two types of hazards:

Obvious,
Potential.

(1) *Obvious*

Think for a moment of your own work area, of the obvious hazards that may exist, such as unguarded machinery. What others can you think of?

(2) *Potential*

We have seen that *most* accidents do not result from any obvious causes. There are many hazards which may appear trivial, but which result in serious accidents. Often they belong to the "just beginning" or developing type; for example, the loosening rung of a ladder at a fire tower, or the loosening head of an axe. These are frequently called "potential hazards".

Can you name some others?

How can we ensure that potential hazards are detected so that they may be attended to?

(1) Regular and frequent inspections by the supervisor.
(2) Constant observation by the supervisor.

Supervisors play the most vital role in safety inspection. You, the supervisor, know your men, your plant, your work operations best. You are in the best position to note anything wrong—gear lying about on floor and passage ways, guards taken off and not replaced, new unforeseen hazards created by a change in operations.

A supervisor is expected to be continually alert for hazardous conditions and practices, and is expected to take immediately corrective action when within his authority to do so.

How to inspect

First, know your work areas and study them by using your "Spot Guide" to list items to inspect in each job that is undertaken, under the headings—

Work site,
Materials, hand tools, etc.,
Vehicles,
Lighting,
Equipment,
Safeguards,
Clothing.

When should inspection be made?

Continual inspection: Some objects require continual inspection in the sense that one must always be on the alert for their occurrence; e.g., walkways in mills and workshops for gear lying about, gang trucks for loose tools and equipment.

Prior to commencement of work inspections: Some inspections are called for immediately prior to certain work being performed, e.g., checking the condition of a ladder before climbing it.

Periodic inspections: Some objects require periodic inspections, e.g., each shift daily and weekly, monthly, quarterly, half-yearly. What the period is depends on the nature of the object.

Special inspections: These may be ordered because of special circumstances. An accident investigation may reveal a special type of hazard and a special inspection is warranted to determine if it exists or is occurring elsewhere.

Who should inspect?

The Supervisor: You should inspect every item under your control.

Your men: You should also ensure that key workers inspect regularly the areas they work in, the tools they use, the machines they tend.

Your men can be of considerable help in assisting you to carry out safety inspections. There are some objects they can observe and report on easily. If your men are to assume a share of the inspection, they must understand what to look for. You will have to train them to do so. Confine their inspections to one or two items at a time to start with. Make certain that the results are reported to you.

SUMMARY

Remember—

(1) You should make inspecting a part of your working life, so that at least part of your mind is so engaged as you move about your respective job of work.

(2) Your systematic inspections must ensure that in the course of every month (or every week if your work is a small one) you have inspected and observed every process, every area, every machine, at least once.

(3) Each inspection you make should be directed at a limited number of items. An inspection of everything is too general and you will fail to notice many details. Naturally, you will tend to observe other faulty items at the same time, but you will achieve the best results by making each inspection a specialised one.

Corrective action

Inspection of unsafe conditions and their identification is the beginning. Correction is the next step. If you have the authority and the means, correct the condition immediately.

Other conditions may require you to ask for maintenance and repairs, or replacements or changes. Ask for them.

Still other conditions may require you to report the matter to your O.I.C. and to discuss with him the correction and action necessary.

Often there will be delays and differences of opinion. Sometimes requests will be refused.

But it is the supervisor's responsibility to keep pressing for correction so long as he is convinced that an unsafe condition exists which could and should be remedied.

In such cases it is the responsibility of management collectively to either correct the condition or convince the supervisor that action is either impracticable or unnecessary.

CHAPTER 9

Intense Accident Investigation

THE INVESTIGATION

The achievement of drastic reductions in frequency rate is essentially a teamwork job, in which the supervisor plays a key role.

Much of the success of accident prevention depends upon CORRECT and INTENSE ACCIDENT INVESTIGATION. To make this at all possible, it is essential that all injuries, no matter how minor, must be reported and treated. This also includes all accidents resulting in damage to vehicles, machinery or equipment, as laid down in the Forester's Manual.

When an accident happens the only good that can be extracted from it is to take steps that will prevent it happening again. The only way to do this effectively is by approaching the problem in a business-like manner and recording all the facts. These facts are recorded on a form known as an Accident Investigation Report (N.S.C.A. yellow form).

The supervisor is required to investigate every accident involving one of his men, or a piece of machinery or equipment under his control, because—

he knows the men that work under him better than anyone else; he knows their ways and how to approach them and is thus in a better position to determine the facts;

he knows the nature of the work operations and the conditions under which the men work;

he knows the nature and condition of the machinery and equipment;

he is responsible for the safety and welfare of his men.

Remember: Every minor injury must be reported because every accident that produces damage or injury contains a lesson. If it is not reported, possibly only the man concerned learns the lesson, which means that the cause is still there to create another accident.

The cause of today's unreported minor injury may be the cause of tomorrow's disabling or even fatal injury.

Often a very minor injury can be aggravated by work conditions, usually through infection, into a severe condition.

Some people, including some supervisors, hold fast to the idea that an accident is something that turns up without warning or conscious effort, apparently the working of some malign providence that can defeat the best of human endeavour.

This is a comfortable and comforting theory, for it not only provides the best of ready-made excuses for what has happened, but also makes it unnecessary to do anything to prevent it happening again.

If this fatalistic approach were carried to its logical conclusion, then attempts at accident prevention would be futile and all safeguards valueless. That does not make sense, nor do those who would argue that they cannot be held responsible because "it was just an accident".

It is true that there are circumstances in which people get hurt where there does not appear to be any satisfactory explanation; some accidents, for example, that derive from what is loosely called "the human element". Finding the real cause of such accidents is like trying to read a book backwards. The scene in the final chapter is unintelligilbe because we do not know what has gone before. But there is a "reason why" if we can only get down to it.

Finding the answer to "Why did it happen?" is the first step in preventing the same thing happening again.

There are sufficient examples of positive corrective action, successfully undertaken, to support the contention that each and every accident should be thoroughly investigated. For reasons which follow, the supervisor CANNOT AFFORD to let an accident pass without trying to get to the bottom of it; then doing something to take care of the situation in the future.

Besides its fundamental importance in accident prevention, investigation has useful by-products. It—

shows concern for the injured employee;

demonstrates sincere interest in on-the-job safety;

helps to maintain safety standards;

serves as a check on attempted fraud.

Accident facts must be gathered while they are still available. Therefore, investigation must not only be thorough but also be prompt. It will be found that if the enquiries are left for any length of time, the individual concerned (or people who witnessed the accident) will begin to rationalise the facts in the light of personal opinion or prejudice. This happens quite naturally without any conscious intention to be untruthful, but it can be misleading. So, to be effective, the investigation must be early as possible after the accident has occurred.

EXPLANATION OF ACCIDENT INVESTIGATION REPORT DETAILS

The information given should be accurate and complete. It should also be concise; details which have no possible bearing on the accident should be omitted.

Most of the items in the report are self-explanatory. The following is an explanation of the information required in some of the important items.

Who was injured?

If, in fact, no-one was injured, use one of the following as appropriate:

"Incident"—for a lucky escape from injury.
"Vehicle"—in case of vehicle accident.
"Building"—in the case of a fire.

How did the accident happen?

"What job was the man doing at the time of the injury?" State the job briefly and concisely.

"What specific step of the job was the man doing at the time of the accident?" State briefly and concisely the step being done.

Causes

State what happened that caused the accident.

Describe what was done or what happened just prior to the accident contact that caused the injury. Example: "The worker was high-pruning pines without eye protection."

Try to describe the events that led up to the accident, and exactly as they occurred.

What unsafe acts, practices or conditions caused or contributed to the accident?

What did the man do, or fail to do, that contributed to the accident? Remember that a specific description is wanted. Don't say that he acted carelessly, or that his attitude was faulty, or that he used poor judgment.

Be concrete. Did he assume a hazardous position? Did he work at an unsafe speed? Was the prescribed work method unsafe? Was it improper attitude, chance-taking, disregard of instructions, breach of safety rules, preoccupation or absentmindedness? Was it lack of knowledge, skill or instructions? Was it mental or physical defect?

As regards unsafe conditions, was there anything about the condition of tools, machines or work layout that was unsafe? Did something need better guarding? Use your "Spot Guide". You will find it a big help when answering these questions.

Corrective action

Corrective action may be directed at the man, or at the job, or at both. If an unsafe act or practice has been identified, what have you done to prevent that act or practice in the future? If it requires the help of someone outside your section to correct the condition, have you requested that such work be done?

Remember to consider both the man and the job. Ask yourself "Do any of the man's actions require changing to prevent this happening again?" Also ask "What changes in job procedures, personal protective equipment, or physical environment would help prevent this from happening again?" Don't be satisfied with finding only one corrective answer, look for them all.

Describe the corrective action that you have taken, not that which you plan to take; if you have instructed a man, describe briefly the nature of your instruction.

Agency

Tick off the applicable agency; this is a valuable guide for future evaluation.

Labour shortages in quantity and quality make the job harder. The situation is not relieved by sitting down and wringing the hands; or by endeavouring to lay the responsibility (even blame) for every set-back failure on the heads of the workmen. Supervision is more a matter of developing people than directing things. When this principle is put to work many difficulties disappear.

In spite of these limiting factors most accidents are preventable. A good safety programme, honestly applied, is bound to get results.

TAKING OVER THE SAFETY JOB

Having looked the major difficulties in the face and found them not too formidable, there now arises the important point of fixing direct responsibility for accidents and accident prevention. The plain fact is that THE SUPERVISOR IS RESPONSIBLE FOR ALL THE ACCIDENTS THAT HAPPEN IN HIS GROUP. There it is, a simple unvarnished statement, and while the arguments against it are being marshalled the points in favour of its acceptance may be set down very briefly as follows:

The supervisor is responsible for production.
Accidental injuries interfere with production.
Loss of production through such accidents is the responsibility of the supervisor.

THIS IDENTIFIES THE SUPERVISOR AS THE MAN FOR THE ACCIDENT PREVENTION JOB.

Acceptance of this responsibility is the first step towards getting action for safety in the work situation.

For the best results, PROMPT attention should be given to the correction of accident hazards. Things which are obviously unsafe, and remain so, can only cause the operative employees to question the sincerity of the supervisor when he talks about working safely. Posters on the wall exhorting the men to do this and that are only a bad joke when the next glance of the eye falls upon unguarded machines or examples of poor housekeeping.

Lessons may be learned from near-accidents which do not result in any injury but which might easily have done so. These hairbreadth escapes should not be accepted merely as examples of extreme good fortune, but rather as heaven-sent opportunities to do something while there is yet time.

Most of the supervisor's work under the heading of "corrective action" will be of a purely routine nature. It will be done before the accident has a chance to occur:

The regular check-up of men, machines and work-place to discover any unsafe methods or conditions.

The provision of adequate personal protective equipment, together with instruction in its proper care and use.

Encouragement of the operatives to report accident hazards with the confidence that action will follow such reporting.

The best of corrective action is that which we never know to be successful because the accidents that do not happen cannot be counted. The next best is that which follows prompt recognition of the hazard made patent by the accident.

One word of warning for the supervisor should be mentioned. When an accident of any seriousness has occurred, consult your superior officer before making any alterations to machines or conditions. What you have in mind to do may be quite the right thing, but give your boss the opportunity to consider it too.

CHAPTER 10

Housekeeping

GOOD HOUSEKEEPING

It is difficult if not impossible to have a good safety record without good housekeeping conditions—a place for everything and everything in its place.

Good housekeeping cannot be achieved by an occasional grand clean up; it is a continuous condition which must be given proper attention and thought.

A place is clean when it is free from unnecessary things. It is in order when these things are in their proper places, properly arranged, and in satisfactory condition. Grease or oil out of place is a frequent cause of floor slipperiness. If articles fall from overhead, they have been out of place. If dirt and litter are about, these are out of place. If material is poorly piled or placed, the material is out of place.

An orderly arrangement is not only conducive to a good accident record, but it is representative of competent management, efficient workmanship, and a better place in which to work.

TYPICAL ACCIDENTS DUE TO POOR HOUSEKEEPING

Tripping over loose objects on floors, stairs and platforms.
Articles dropping from above.
Slipping on greasy, wet or dirty floors.
Running against projecting, poorly piled, or misplaced material.
Tearing hands or other parts of the body on projecting nails, hooks or sticks.

Typical items of unsafe housekeeping

Excessive material, waste or chips in working area.
Aisles congested.
Tools left on machines.
Waste containers overloaded.
Tools lying around on a gang truck.
Pools of oil on floors by machines.
Electric leads and air lines across aisles.
Poor lighting.
An accumulation of flammable material on a bulldozer working at a fire face.

HOUSEKEEPING AND INCREASED PRODUCTION

Under a demand for greatly increased production, the tendency is to "let down" on housekeeping, including such things as the piling of materials and articles, cleaning of areas and removing scrap and waste. This, of course, is conducive to accidents.

For good housekeeping, the interest and co-operation of supervisors is an absolute essential, because it is this group that controls the conditions that they themselves create. The co-operation of the rank and file is also essential, but the supervisory personnel must provide the initiative and the leadership.

A clean and orderly working area, whether it is a mill, a store or a pine plantation, leads to greater worker efficiency and safety.

CHAPTER 11

Works Safety Committee

Employee participation in the accident prevention programme is a factor in the development and retention of worker safety awareness. A person does not learn to play football by reading a book or listening to a lecture on the sport. It takes actual practice to reach even a moderate degree of competence. It is a basic principle that people learn "by doing" and their interest is increased when they are taking an actual part in the activity. So it is in safety; employee participation in the accident prevention programme stimulates interest and enthusiasm for the various safety activities.

In safety, as in every other phase of industry in which management-worker co-operation is essential, the formation of a joint committee is of real practical value, if only as a means of workforce participation and education, communication, both up and down, and to demonstrate management's determination to take an active interest in the safety programme.

WHO WILL OFFICIATE?

Composition of committees

There are three sections which should be represented: management, supervisors and workers. The smallest possible committee of this kind might be made up of D.F.O., field officer, overseer and one employee. Large committees are elaborations of this simple form. It will be as well to ensure that as many districts, sections and gangs as possible of the employees and staff are represented. If any sections such as Working Plans or Research are not directly represented for reasons of convenience in organisation, they must be kept closely in touch with the work of the committee and must be given facilities for bringing their ideas before it.

Size

It is impossible to lay down any hard and fast rules for the ratio of management representatives to workers, but workers should never be given less than equal representation with the management. In actual practice, in the majority of successful committees, the workers preponderate.

A balance must be held between the rival necessities of wide representation and of keeping the committee within reasonable limits of size. Generally, more than 20 members would seem to be undesirable as the intimate and personal character of meetings is liable to be lost. It will probably be better if the committee is limited to a maximum of 15 members. At the other end of the scale, four members is the smallest number for practical purposes. No district is too small to have a committee of this size.

If the Division is very large or is formed of a group of out-stations, it may be found desirable to divide it into sections and to form a committee in each; adequate representation may otherwise be unobtainable without making the main committee too large.

The permanent members of the Divisional Safety Committee shall be the Divisional Forest Officer as chairman, the Divisional Safety Officer, the Divisional Vehicle Safety Officer and the Secretary. Refer Forester's Manual.

Conduct

The meetings of the committee should be conducted according to the generally accepted rules of procedure, but while order must be respected and maintained, enough latitude should be allowed to prevent formality from overwhelming the meeting and having an adverse effect on frank and free discussion.

The chairman should not be too hasty in ruling a matter out of order without giving a reasonable explanation. Otherwise, the member trying to raise it may feel that he is being deliberately muzzled. An atmosphere of freedom of speech must be created from the beginning; once the representatives feel that it is useless or unwise to voice an opinion, the committee has failed.

WHAT WILL THE SAFETY COMMITTEE DO?

General

The scope for the activities of the safety committee is wide and, provided the committee is keen and well run, there should be no difficulty in finding subjects for discussion. At the same time there may be occasions when a committee tends to "dry up" on the routine subjects, and for this reason the chairman or secretary ought to have a few ideas "up his sleeve" at every meeting. Moreover, the chairman ought to find time to go through the agenda with the secretary before each meeting in order to have a clear idea of the business to be transacted and to prepare himself to lead discussion, if necessary, along the most useful lines.

Accident reports

One of the major routine duties of the committee will be to consider any accidents which have happened since the last meeting. A full report should be submitted by the safety officer, and members of the committee should bring out in discussion the real cause of the accident and prescribe methods for the prevention of similar accidents. In certain cases, witnesses of the accident or even the injured person may be invited to attend.

It has sometimes been found that, if all the accidents are considered at each meeting, too much time is taken and, for this reason, the safety officer may pick out those which he thinks will be of interest to the committee or on which he needs most in the way of help or suggestions. This method seems to have a disadvantage in that it may lead to a neglect of the commoner accidents which form the bulk of those that occur, and so give members of the committee an unbalanced view of the situation. The only proper solution is to give time at each meeting both individually to a few selected and specially interesting accidents and also, in bulk, to the common and everyday types which really need the most persistent attention. It may be profitable to discuss recent First Aid Treatment Slips.

On some occasions it may be found necessary to take the whole committee to the scene of certain accidents in order that all the members may obtain a clear idea of how it happened. The workers' representatives, in particular, are sometimes very adroit in discovering unsuspected causes.

Statistics and records

The safety committee should have access to all the accident records including First-Aid Treatment Slips, frequency rates, severity rates and analyses of accidents by types. It is desirable, however, that whoever presents the figures to the committee should have a sufficient understanding of statistics to know when figures are "significant" and when they are not. Thus, while the committee should take a continuous interest in the frequency rate, members should not be allowed to become unduly depressed or elated by every fluctuation, but should be guided to an appreciation of the general trends revealed by the figures. Graphs showing the monthly rise and fall of the rate over the previous two or three years will help the committee to get current figures in perspective.

The use of statistics, and their presentation, are fully discussed in the R.O.S.P.A. pamphlet "Works Accident Statistics", which is available in Western Australia through the Industrial Division of the National Safety Council of W.A.

Inspections

Each member of the committee will naturally be expected to supplement the efforts of the safety officer in his own district, gang or section. He can do this partly by noting unsafe practices and warning fellow employees, and partly by discussing safety in his own district, gang or section and making suggestions to the committee for the improvement of conditions likely to lead to accidents. One of the difficulties of routine section inspections is that certain dangerous conditions may make fairly regular but only temporary appearances, which do not coincide with times when the inspections are made. In this connection the help of members of the committee and of supervisors is invaluable as they are constantly in the section.

On the other hand the safety officer may find the presence of a few members of the safety committee very useful during his routine inspections. In many works a roster is appointed for this work; it may be the same as that which is appointed for investigating accidents on the scene of the accident. Members of the committee may also make or help to make routine or surprise inspections of the first aid boxes or of emergency safety equipment.

Suggestions

Where suggestion schemes are in operation it is usual for a special committee to consider the merit of individual suggestions, but those concerned with safety may be dealt with by the safety committee. The safety committee's recommendations for awards may be forwarded to the Department Safety Officer for consideration.

In addition to considering suggestions from sections, members of the committee will naturally have ideas of their own to put forward. It is essential that there should be some arrangement whereby these suggestions, if approved by the committee, can be considered by the management without loss of time. The surest way to kill the enthusiasm of a committee is for the management to ignore its suggestions or to reject them without giving some good reasons.

Literature

Safety literature which comes to the Department either from the Industrial Foundation for Accident Prevention of W.A. or through other channels should be discussed by the committee unless it is highly technical. It will probably be found best to circulate such material beforehand and then ask for matured opinions at the meetings. Articles or extracts of special interest may not only be circulated but read aloud at the meetings in order to draw special attention.

Safety rules and regulations

New departmental circulars should be brought to the notice of the safety committee. Apart from making constructive suggestions for the carrying out of such requirements, members of the committee can help to publicise them and explain them to other employees and so will help to secure compliance.

The same applies to local regulations introduced by the D.F.O., with the addition that the committee may help in drawing up these rules and should certainly be given the opportunity of commenting on them before they are issued.

PUBLICISING THE COMMITTEE

Not the least important feature of a divisional safety committee is that its mere existence helps to arouse interest in accident prevention. To get the full effect of this it is desirable to give the committee a certain amount of publicity. One way to do this is by posting extracts from minutes on the notice board, as already suggested. Another method is to give committee members a distinctive badge such as those supplied by the I.F.F.A.P. These badges not only advertise the committee but also help workers to recognise and get in touch with their departmental representatives. Whether members wear a badge or not, their names should be published or displayed in one way or another, so that employees are constantly reminded of the existence of the committee and of the names of their own representatives.

OTHER ACTIVITIES

Besides the above activities, which may be considered as the basis of discussion at each meeting and which would provide ample business, it will be necessary to find matters of special interest from time to time in order to introduce variety. For instance, the committee may request the safety officer or some other officer to make a survey of certain parts of the works organisation or equipment, e.g., fire towers, job cranes, first aid equipment, lighting, log landings. While it is true that all those matters should be included in the regular routine inspections, a special and comprehensive survey of any one of them will prove very helpful and instructive. Besides revealing whether the works is in safe condition in that particular respect, it will give the committee a valuable detailed knowledge which it would not otherwise possess.

SUMMARY

When the need for employee participation in the safety programme became apparent, one of the first approaches was to organise safety committees. Such committees are still a part of most successful safety programmes. It is not surprising, therefore, that in most discussions on safety organisation safety committees are recommended. It is a fact that these committees enlist safety activity at all levels of the organisation, promote employee self-education in safety, and generate greater employee interest in safety activities. There is no doubt that in most organisations the safety committee has been a worthwhile part of the accident prevention programme. However, management should not be content to accept the safety committee as an essential part of the safety programme just because of past successes. Nothing kills activity quicker than boredom, or the feeling that what you are doing is not serving any good purpose.

Some of the larger companies in this country with very active and successful safety programmes have departed from the idea of the safety committee, simply because it has outlived its usefulness in that particular organisation, and are now concentrating their efforts on programmes such as communication or supervisor training. Industry has gone far in the reduction of accidents, but there is still far to go in many places. Change might well be a part of future progress, so, if you have a better idea, give it a try.

CHAPTER 12

Discipline and Unsafe Acts

Aim: To examine disciplinary punishment as a method of treating unsafe acts.

The supervisor's lot is not always an easy one when he has to punish one of his men.

Discipline includes mild admonishment, expression of disappointment, informal reprimand, formal recorded reprimand and penalties (such as omission from overtime lists, demotion to a job with lower pay and/or status) or dismissal.

Discipline by way of penalties is a last resort, and is usually an indication of supervisory failure.

Discipline by way of penalties should only be used where leadership, persuasion and appeal, including *instruction and training,* has failed. There are, however, occasions when discipline is the only practical answer, and supervisors must be prepared and willing to use it. Where a safety violation places the safety of a work group in real jeopardy, involves gross insubordination or is likely to result in serious injury to the violator, it is wrong to minimise the violation by administering a mere reproof; firm disciplinary action must be taken and is usually expected by other workers. If corrective action is not taken against infringements of a safety rule, the rule soon ceases to exist.

But—*make sure of your facts, and hear the offender out, before awarding penalties.*

Let's first study some objectives of disciplinary punishment.

Types of disciplinary punishment and their objectives

Punishment for revenge

One of the oldest and most primitive objectives of punishment was simple revenge—"an eye for an eye or a tooth for a tooth".

An example of this revenge type of punishment is when a small boy breaks his sister's doll. Mother comes out and breaks the small boy's shanghai. This form of punishment can at times be useful, but seldom in dealing with adult workers.

Punishment to protect the group

Your home and family, my home and family, must be protected against criminals—against burglars, thieves, murderers, etc. This objective of punishment applies in treating unsafe acts where one man's action endangers his workmates.

We remove the hardened criminals from society, not to protect them from themselves but to protect us from them.

To demote or dismiss a man may be necessary when a man's unsafe acts continue to endanger his workmates.

Punishment as instruction

We want to teach offenders to obey certain rules. This is a most common objective of punishment, i.e., a penalty such as ommission from overtime lists, or transfer to a lower paid job, teaches a man and others a lesson.

If Bill Smith is punished for not wearing his goggles, word quickly goes around the department. For a while, at least, everyone in the department is more likely to wear goggles. In many situations proper punishment does reduce the number of violations of correct practice. It usually does, but very often, unfortunately, only for a while.

Disciplinary punishment as a mark of authority

We all often wonder about the effectiveness of the punishments we, as supervisors, hand out. But often we cling to the right to punish as a means of preserving our authority. We must have forms of punishment; otherwise our position as supervisors would be weakened. Punishment is undoubtedly a method of letting employees find out "who is boss".

However, we must remember that we achieve respect more surely for ourselves and our safety rules when we consistently and impartially enforce the rules.

Punishment must be fairly administered. This is the key. Often we find rules as they are written are not always enforced. Supervision after an accident commonly gets tough and makes someone the scapegoat. We are all aware that this sort of thing does occur. We also know that the long-term effect is uncertain, to say the least. Underlying this type of situation is often a problem of communication. Men generally obey rules they know and respect. Men respect rules that are impartially and consistently enforced. Supervision which blows hot and cold—purges one day and let-offs next day—is not respected. Lack of consistency is more productive of discontent and grievances than consistent unusual strictness.

SAFETY RULES

Make sure—

The "rule" is practical

The rule must clearly express the correct and safe way to do the job. Men must be able to obey the rule and work as quickly and as conveniently as the job demands.

The "rule" is particular

The rule must set down specifically what the men must or must not do, when and how. General rules which in practice require frequent exceptions are of little value.

The "rule" is acceptable

Acceptance has two important aspects.

Firstly, the rule must be known and understood by those men who are to follow it. Secondly, those men who are to follow the rule must acknowledge the rule.

These aspects mean in practice that the employee must be taught the correct and safe way to do the job. The employee's supervisor must be confident that the employee can do his work and obey the rules.

The employee and his supervisor must acknowledge that the work can and is to be done in the way the rule stipulates.

The "rule" is enforced consistently and impartially

The supervisor consistently enforces the rule when he explains how the job is to be done—provided his "how" means the job is to be done in a way that conforms to the rule.

The supervisor consistently enforces the rule when he never fails to ask the employee why the job is not apparently being done according to the rule.

The supervisor consistently enforces the rule when, following an accident, he always investigates to learn whether the rule was being followed or not, and takes appropriate follow-up action.

Impartiality means more than being fair from the supervision point of view. The supervisor must be prepared to listen to a man's explanation as to why the rule was not followed. Only *after* he has listened can the supervisor even appear to make an impartial judgment.

SUMMARY

Preparing safety rules is not difficult; the real problem is their enforcement. It must not be thought that the issue of rules and instructions dispenses with the need for constant supervision. Indeed, supervision is the only means of ensuring that rules are obeyed.

Rules are useless unless they are complied with. If in practice a rule is ignored, and there is no apparent means of enforcing it, then it should be changed or withdrawn.

Be sensible about safety

Sometimes it must seem that all this insistence upon the supervisor's responsibility for accident prevention is something of an imposition. Already coping with what he may consider to be an over-full range of duties, there may be a tendency to dismiss the matter with a "Yes, but surely these fellows on the job have got some responsibility to look after themselves?" They certainly have, and this can be taken in its turn, but the supervisor is a leader, not a follower. In safety, just as everything else affecting his department, the leadership of the supervisor is a prime consideration. There is ample evidence to show that no supervisor's job is complete without full attention to the safety of his men.

A point to remember

It must, however, be readily admitted that, granting the supervisor all the necessary enthusiasm for safety, the job is still not easy. It is well to consider at the beginning a sobering thought:

> Engineering alone will not prevent accidents, if it could be there has been ample time for accidents to be engineered out of industry. The provision of the safeguards that engineering technique and practice can produce is an important part of accident prevention. Unhappily, it is the individual operative with his oft-times unpredictable behaviour who provides the reason for most of the accidents which happen.

CONCLUSION

The human element is of paramount importance in the field of safety. To ignore it or to discount its importance is to increase the number of accidents, lower the morale of the workers and, as a result, lower the productivity of the organisation. A supervisor can never be sure he will achieve good safety attitudes among his subordinates until he has, firstly, given them the opportunity to gather satisfaction from their employment and, secondly, shown them the relation between safe working and job satisfaction.

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