

Occupational Health and Safety Management System Auditing

Dr. Bill Pomfret PhD; MSc; FIOSH; RSP; DipSM.; President, Safety Projects International Inc.;
Kanata, Ontario, Canada,

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Abstract

The Occupational Health and Safety Assessment Series (OHSAS) specification gives the requirements for the Occupational Health and Safety Management System to enable an organization to control its risks and improve its performance. It does not state specific OH&S performance criteria, nor does it seek to provide detailed specifications on general management system design. The writer has designed a system which helps clients to comply with the OHSAS 18001 requirements, achieve international recognition and potentially save \$ millions in reduced premiums.

Introduction

No other safety related activity could produce a status evaluation of any industrial or commercial enterprise better than a comprehensive audit. Performed professionally, audits provide management with answers based on facts, which in turn, generate appropriate solutions to problems. . As safety professionals, it is our responsibility to ensure that we help managers ensure that their actions and activities within their mandate of control are based on facts.

There are many Health and Safety Management System “models” available, BS18001, the ILO, the ISRS and the 5 Star System to name a few. One thing is certain, that there is no “one size fits all” Occupational Health and Safety Management System, [OH & S-MS]. An effective, quality driven OH & S-MS is really measuring and verifying “conformance to requirements or standards”, without which there can be no effective measurement or evaluation of performance.

This paper will address the elements and protocols for one “Model”, which will show that safety is a process not a product, and that professionally done, a Health and Safety Management System can put any organization on a step-by-step program of progressive improvement.

As an Introduction to Health and Safety Management Systems, I think it is important for each of you to understand the rationale behind them. This document aims to provide that understanding.

One of the greatest challenges facing management today is to conserve all our human, physical and financial resources. Many have realized that good management means making the best use of all available resources; it means, inter alia eliminating waste. One of the major waste causing agents are accidents resulting in death, injury, disease and costly damage to equipment, property and the environment, which invariably result in production losses.

The 5 Star Health and Safety Management system was developed when it was realized that virtually every accident prevention program, irrespective of the type of Industry, consisted of certain basic elements. In other words, a checklist of key items could be made. Compliance with the list of items could then be determined. The list has grown over the years from the original 40 elements in 1976 to the current 78 items which we have placed under 5 main headings:

1. Premises and Housekeeping,
2. Mechanical, Electrical and Personal Safeguarding,
3. Fire Prevention, Protection and Emergency Response,
4. Accident, Incident Recording and Investigation,
5. Health and Safety Organization.

Leadership and Control Functions

By Identifying the key items or elements, which go to make up an effective health and safety program, we are following two important management principles – Leadership and Control are fundamental to the success.

The challenge to executive management is clear. Safety through leadership is more fulfilling, more rewarding, more economical, and more democratic than safety by work group imposition or indeed by government imposition. Initiative and positive leadership can control the erosion of freedom to manage.

In order to carry out the leadership requirements, management needed to be convinced that an effective safety management system was simply a sound investment, which would produce fantastic financial rewards, if they provided the leadership required.

In order to carry out the functions of management in broad terms, management needs to appreciate the activities required to carry out the control function. One has to plan, organize, lead and control. From our experience of over 50,000 audits, the weakest link in the chain of management activities is the control function. Controlling is the function of determining where you want to go, observing to see that you keep on the course and schedule, and giving orders if necessary to correct the variances.

Identify those key items, which economically and practicably can be controlled – like the elements of the health and safety program. It is not financially possible or feasible to control everything.

Set standards of performance. These should confirm what needs to be done, how often is it to be done, who is to do it, where is it to be done, what records are required, what reviews are required, and what quality is required.

Set standards of accountability as to who is responsible to carry out the control of the identified items.

Measure against Standards, measure work in progress or performed against the standards.

Evaluate any positive or negative deviation from the standard.

Commend or correct. Commend good performance, and if necessary, correct any deviation from the set standard.

Bearing the above management leadership principles in mind, we added a further facet to the system – recognition. Realizing that people by their nature enjoy recognition, it was felt that we could then set objectives. We quantified each of the items by allocating marks or points and weighting those considered more important than others.

By evaluating management's leadership efforts in taking up the challenge to reach the objectives set, one can determine the strengths and weaknesses in the existing program.

Recognition

A real motivator, however, is the recognition, which is to management and staff for their efforts. Recognition is given in the form of a star grading. This is awarded on the basis of 51% for the first star, 61% for the second, 71% for the third, 81% for the fourth and 91% for achieving the ultimate 5 stars.

Our grading system has one further provision in that the visible quantifiable effort made to reach the objective must result in a reduction of injuries, at this stage measured in terms of Disabling Injury Frequency Rate. Admittedly this is not ideal but by using the DIFR as well we have a more balanced approach. For the financial and human resources spent on the safety program to be viable, there should initially be a reduction of injuries and then maintenance of good low figures.

The stringent grading standards must then meet the following Disabling Injury Frequency Rate {DIFR} requirement as well:

Table 2 – Grading Standards

DIFR	Number of stars	Grading	Grading %
1 or less	5	Industry Leader	91%+
2	4	Excellent	81%+
3	3	Good	71%+
4	2	Average	61%
5	1	Fair	51%

Modus Operandi

It is very important that the evaluation be carried out in a specific manner and order. A safety program is, generally speaking, an abstract activity. It is, inter alia, the activity of giving good instructions, and seeing that those instructions are carried out. It is this abstract nature of a safety program, which can make it hard to “sell” and introduce. Therefore, in order to be successful in selling any abstract idea, one needs to follow the golden rule of changing an abstract concept into a concrete one. For instance, one needs to physically investigate and evaluate the condition of equipment like portable electric tools on the shop floor. Having determined any weaknesses, one can then advise remedial measures to rectify the situation.

An analogy is in the case of the doctor, who needs his/her stethoscope to listen to the patients heart or chest to verify the symptoms observed and only then can it be determined which remedial measures are required to rectify the situation.

One therefore needs to physically see and determine where the problem areas at plant level are. By asking key questions of management and staff an indication can be obtained of the procedures and attitudes regarding health and safety. What one sees and observes is usually symptomatic of weaknesses and strengths in the management control function. Armed with this knowledge one can establish what systematic remedial measures should be taken.

As stated earlier, never before has there been a greater need to conserve our valuable resources of people, equipment, materials and profit. One of the indicators of poor profit performance of a business is the number of accidents/ incidents it experiences. SPI devised a system whereby a critical evaluation of the profit reducing areas caused by waste can be made. It will assist management in meeting their financial, legal and moral challenges of the future.

The objective of the system is to determine where improved stewardship needs are required so that the most effective and balanced use of a company’s financial physical and human resources is made using modern management methods.

How the system works and what it will do for management wishing to take up the challenge will be discussed under the following headings:

- Management’s Financial Responsibilities
- Management’s Legal Responsibilities.
- Management’s Moral Responsibilities.
- The Cost of Accidents.
- Why do Accidents Take Place?
- Management Control System
- Management Leadership
- Management Principles
- Application of Principles of 5 Star Health and Safety Management System™.

The Problem

When managing a business enterprise or public institution, many responsibilities rest heavily on the shoulders of management, one of the most important being: make the enterprise viable.

In order to do this, attention needs to be given to marketing, innovating productivity and the effective use of human, financial and physical resources.

Invariably profit is the main motivator in most businesses – profit spells survival. It tells and warns us what the future will bring. {In case of government and similar service institutions, read optimal service at least cost}.

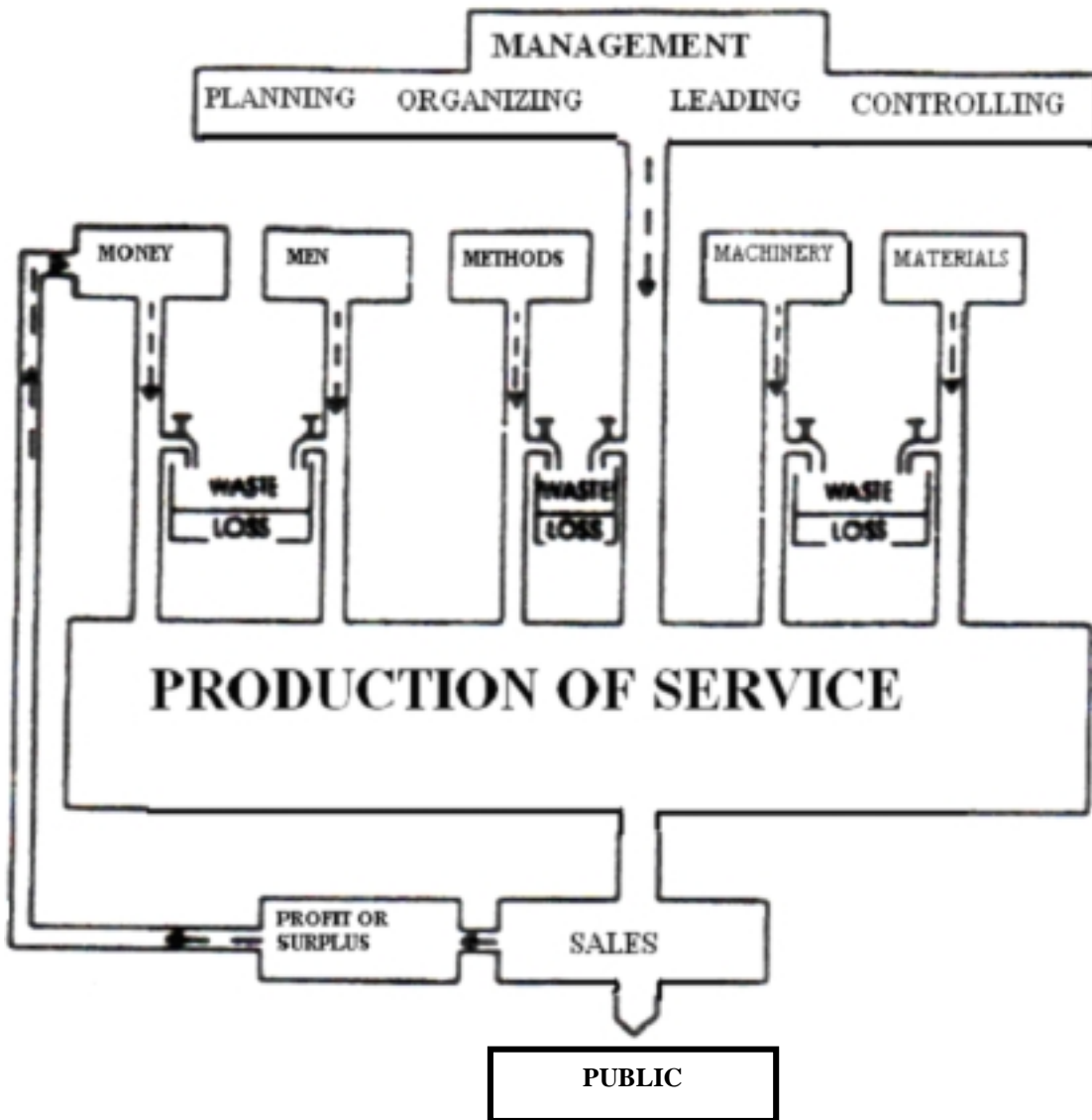
Peter Drucker, {1} in his best selling book “The Practice of Management” makes the point that:

“Management must always in every decision and action put economic performance first. It can only justify its existence and its authority by the economical results it produces.”

Managing successfully falls under the headings of planning, organizing, leading and controlling. The successful manager will cause an interaction of the various components of the enterprise in order to reach the objective of the undertaking. The components may well be the familiar five M’s – the material, the money, the machinery, the methods and the manpower required to produce the products or services which will be converted into a saleable article and so in turn result in a profit performance for the company.

In carrying out the functions of planning, organizing, leading, and efficiently controlling, management has to inter alia,, referring to materials only, see to it that the right quality and quantity of material is available at the right price and the right time. If these requirements are not met, then waste is going to take place. This in turn is going to result in loss, and must affect the profit performance.

This concept is applicable to the other Ms in the chain of events, which lead up to reaching the objective of completing the task. {See figure 1}. Therefore, it stands to reason that in order to combine the five Ms effectively and efficiently, one must eliminate as much waste as humanly possible. The waste can be in the form of a deviation from the plan; it can be in the form of incorrect labor, incorrect machines and incorrect methods. This can make all the difference between two companies, A and B, producing the same product in the same market and possibly at the same price; company A making a profit by controlling waste, but company B making a lesser profit, if not a loss, through not controlling waste. Despite the basic need to strive for optimum profits, many businesses are daily cutting into their profits through poor control of areas of waste like damage to equipment, injury to people and fires. Very conservatively the losses caused by business interruptions {called Accidents}.



The “cocks of control” should be kept closed to eliminate resources being siphoned off and wasted by errors or so-called accidents.

Figure – 1

Factors of Production

ACCIDENT COST ICEBERG

(per \$100.00 of Economic Activity)

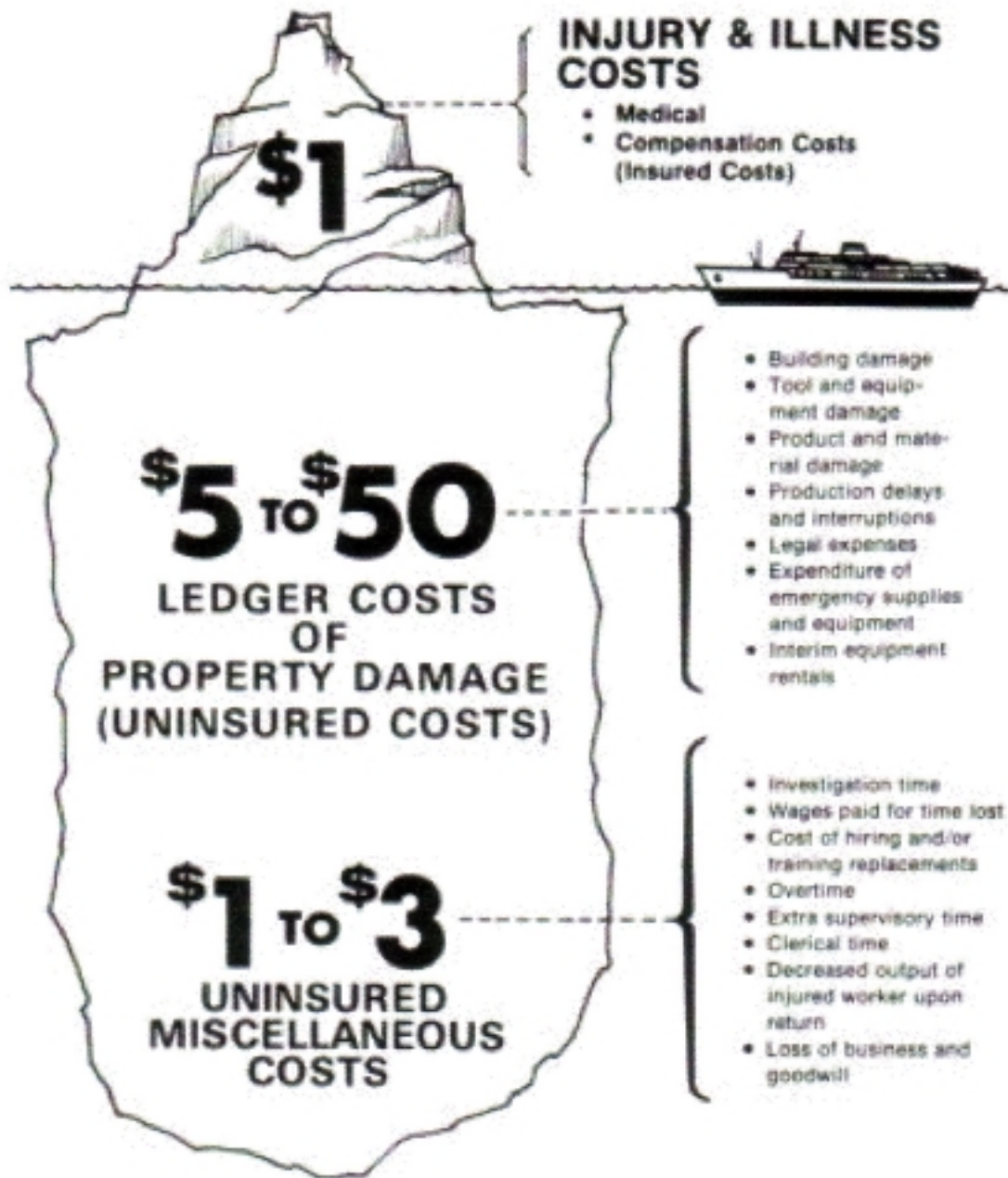


Figure - 2

First Iceberg Effect

The costs arising out of accidents/incidents, referred to previously, really only constitute a fraction of the total cost. There are many hidden costs which management erroneously believe do not effect their profit performance. There are two main types of costs which arise after an accident takes place. These can be broadly classed as insured and uninsured or hidden cost. The insured costs, which are covered by Workers

Compensation, include medical attention, hospitalization, rehabilitation etc. It was stated in 2002 that in Ontario the average lost time injury cost over \$59,000-00. The average compensation claim cost over \$11,771.00. But those accidents which cause damage to plant or loss to the process, but that do not cause injury are estimated to occur at a rate that is 5 to 50% more, and still people ask “do accidents really effect profits”? Like all icebergs, the mass below the surface is the most dangerous. This is especially so when we consider what these hidden costs could add up to. Some writers maintain that the ratio of insured costs to hidden costs could be 1.4.

Second Iceberg Effect

If one iceberg were not enough to emphasize the terrific amount of avoidable waste, which is taking place, there is a further iceberg. This relates to the frequency of injuries to the number of accidents/incidents which take place. From studies carried out in the UK, USA, Canada, and South Africa, it was seen that there is a definite ratio between the various types of accidents.

A study carried out by Frank Bird revealed the following ratios of accidents reported. For every one serious, or disabling injury reported, there are 10 injuries which required medical attention only; there were 30 property accidents of all types and there were a further 600 incidents with no visible injury or damage.

[Figure 3] In referring to the 1/10/30/600 ratio it should be remembered that this represents the total # of accidents/ incidents reported, not that actually occurred. The above ratio clearly indicates that it is foolish to direct our efforts to the relatively few events that terminate in serious or disabling injury. The fact that there are 630 property damage or no loss accidents/incidents for every 11 injuries, indicates that the total loss due to injuries accounts for less than 2%, so there is a much larger basis for more effective control of the total loss due to accidents.



Figure – 3

Do Accidents/ Incidents Really Effect Profits?

In order to determine whether business interruptions, commonly called accidents/incidents, really affect profits, a break-even chart possibly explains the situation better than any other method.

When determining the production cost of a commodity, cognizance must be taken of the variable and fixed costs. The variable costs consist of basically the raw material, labor, packing materials, power and water. These costs vary in direct proportion to the number of units produced and in our example let us assume that the variable costs are \$1.00 per unit. In consequence, if 100 units are made, the variable cost will be \$100.00. In contrast, fixed costs do not vary in terms of output but are incurred whether nil units or 400 units are made. These costs consist of management salaries, taxes and depreciation. They are all a function of time, not output. In the example we have set the fixed cost of \$300.00 a week.

If we look at the break even graph # 1 set out in Figure 4 we will see in this simple example that the cost per unit reduces as the number of articles are produced increases {known as the economies of scale}. If we produce 400 articles they cost us \$1.75 each, but if we produce only 300 articles they cost us \$2.00 each. Selling them at \$2.50 each the profit is .75 cents a unit if we produce 400 articles, but with the lower production {300} the profit drops to only .50 cents a piece. So in our example, if the company produces and sells 400 units a week, the profit is \$300.00.

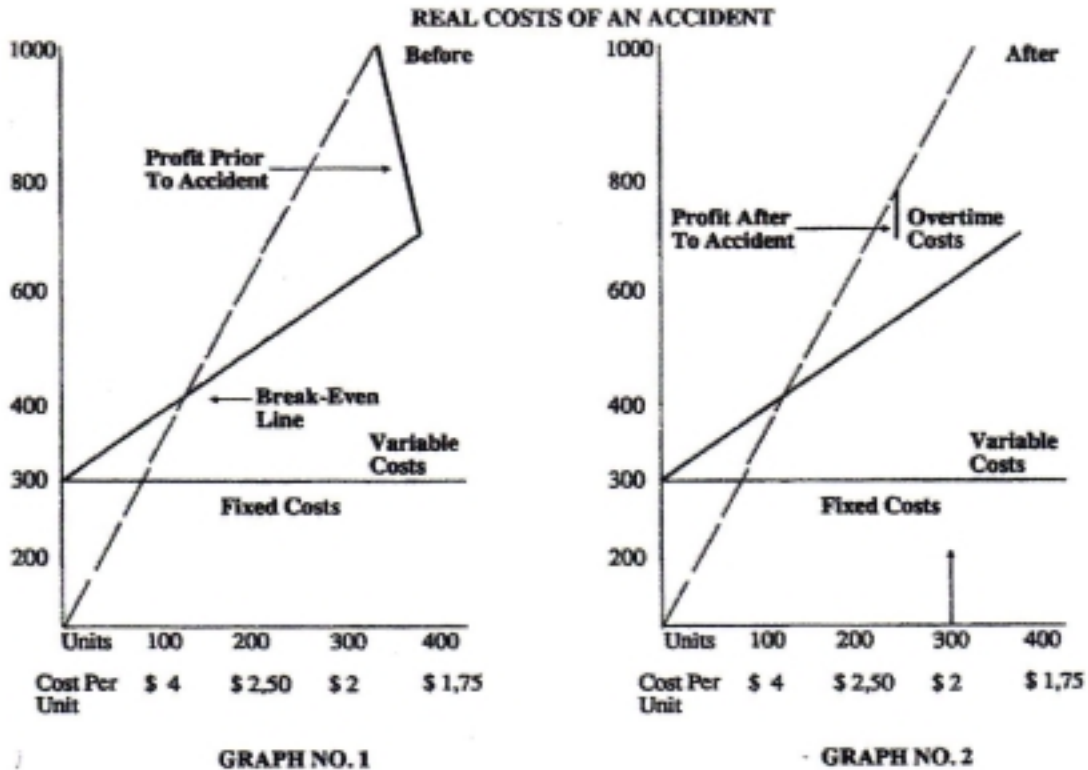


Figure - 4

But then it happens! The saw-blade” explodes” due to an overlooked crack – the saw bench is shattered, equipment and product are damaged. An accident has taken place and damage has resulted, now two things happen: [1] the output falls to 300 units for a week – according to our break-even graph #1. The cost price goes up to \$2.00 and the profit falls.

[2] Overtime has to be worked to maintain the 300 units for the week. This will result in a higher variable cost of \$1.25 and further reduction of profits to a mere \$75.00 [see break even graph #2 also in figure 4]. A

drop in profit from \$300.00 to \$75.00 a week cannot make any manager happy, let alone a shareholder, in fact, can the manager call himself a professional when he has not optimized profits at all?

These concepts, naturally, are applicable to each and every interruption in the work process, which in turn is the result of some wasted activity or resource.

Therefore, without a doubt, every business interruption must affect profits. In fact, one invariably finds a definite correlation between profits and the DIFR of a company. A typical example of this is a case of a large steelworks which showed a profit improvement of \$30 million with a drop from 35 to 8 [7%-1.6%] see Figure 5. One of the reasons for this is the fact that those elements which assist in running a business efficiently also contribute to reducing accidents/incidents like selection, training, correct tools, work methods and communications.

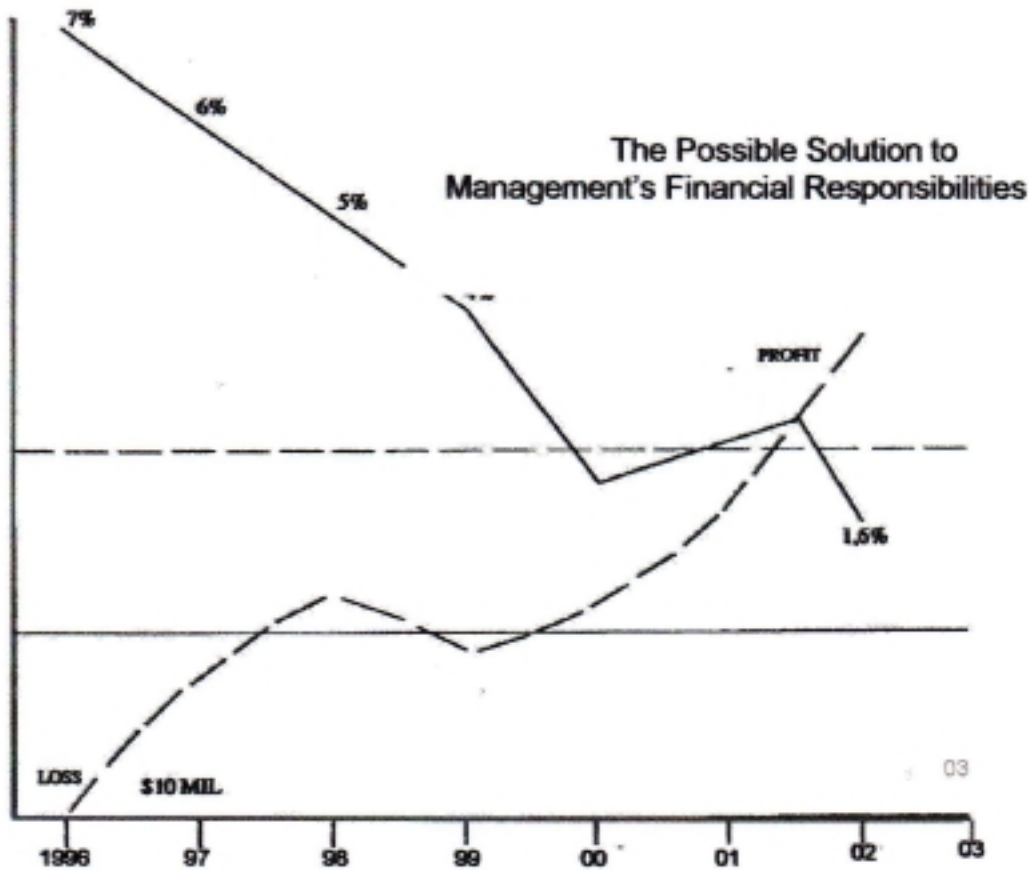


Figure - 5

The effects on the profit margin can be a real eye opener for management; the most convincing method is to present the following table. Assuming an average profit on sales of 5%, it is necessary to sell an additional \$1 million to cover the loss of only \$50,000 through accidents.

It is necessary to sell an additional \$1,667,000 of product to pay the cost of this \$50,000 in annual losses from injury, damage, theft or fire, assuming an average profit on sales of 3%. The amount of sales required to pay for losses will vary with the profit margin.

In times of keen competition and low profits, loss prevention may contribute more to profits than your best sales outlet.

Management's Legal Responsibilities

Most managers are aware that certain rules and regulations are on the statute books, and place heavy responsibilities on their shoulders. The legislation generally evolves around the following general duties:

- To provide a safe and Healthy place of work
- To provide safe systems of work
- To provide safe access and egress to their place of work
- To provide adequate information, instruction and training and supervision
- To provide and maintain safe plant, equipment and facilities

To assist management in complying with their legal duties, management must make certain appointments in writing and ensure they are adequately trained to perform their duties.

In our experience, few managers understand the legal language, therefore Safety Projects International prepared much of the documentation required to comply with the majority of International Laws. A systematic, planned approach to complying with these Acts and Regulations is incorporated into the 5 Star Health and Safety Management System.

Management's Moral Responsibilities

The moral responsibilities resting on management's shoulders concerning the workers, their families, and the public is very real indeed. Many managers believe that workers compensation will meet all the costs involved. Because of the shortfall the employee may not be able to meet the financial commitments on the car, the mortgage, television and furniture repayments, His/her family may well have to suffer hardships.

Management by Leadership Requires Clear Objectives

It is not difficult to understand that the total prevention of all loss producing events is neither economically feasible nor practical. It has been stated that the US space program proved that with an unlimited budget an almost perfect safety system is possible, though not practical. In industry and government management must strive to optimize loss control effectiveness within the constraints of budget and available resources.

For all practical purposes, a program must be carefully planned to evolve at the fastest possible rate over a period of time, subject to the same business considerations involved in production, quality and cost improvement.

People by nature are competitive, they like a challenge. We decided to develop something to meet this need so that those involved in program to improve the profit performance and reduce losses, will rise to meet the challenge.

Principle of the Critical Few

In any given group or array, a relatively small number of items will tend to give rise to the largest proportion of results.

This principle can relate to the cause and costs of loss, anatomical location of injury, occupation and job involvement, pieces of equipment material or operators. Its application is so wide and its value so great in terms of time and effort conservation that it is considered one of the most important management principles.

One of the most useful applications of this principle is its use in arriving at the objectives which contribute to making a successful accident prevention program. Thousands of companies throughout the world have used these 78 elements in planning their programs.

Principle of Recognition

Motivation to accomplish results tends to increase as people are given recognition for their contribution to those results.

The successful manager is the individual who can associate every facet of his/her program with a member of the team who assisted in promoting it. Application of personal and behavioral recognition serves as a powerful motivating force in reinforcing management and employee efforts. Recognition feeds the individuals strong desire to feel they contributed, regardless of status or position.

Principle of Participation

Motivation to accomplish results tends to increase as people are given opportunities to participate in the decisions affecting those results.

Participation involves making systematic provision for consultation with those involved in the program; their suggestions, recommendations and advice create a sense of involvement and commitment. This is especially applicable when determining the priorities of the objectives, which should be tackled first in establishing the program.

Biography

Dr. Bill Pomfret PhD; MSc; FIOSH; RSP; DipSM., President, Safety Projects International Inc., Kanata, Ontario, Canada, Telephone – (613)832-3939, e-mail-pomfretb@5star.com, website-www.spi5star.com.

Dr. Pomfret is a best-selling author, speaker and dynamic presenter, who has traveled the world educating and motivating management to adopt effective health, safety and risk control policies, practices and procedures that prevent or mitigate human, economic and environmental losses from adverse occupational exposures. He has developed and implemented many Occupational Health Safety and Environmental models and has taught practices and procedures at McGill University.

Dr. Pomfret has been in the Occupational Health and Safety system development-consulting field for thirty years. He designed and developed the 5 Star Health And Safety Management System™ in 1978 and the 5 Star Environment Management System™ in 1984.

He started his career with Imperial Chemical Industries (ICI) and then spent many years in the offshore oil industry. He received his doctorate in education and his masters in occupational safety and health. He is actively involved in developing ISO 14001 EMS programs and ISO 18001 OHSAS programs for many of the world's Fortune 500 companies and for other clients around the globe.

Dr. Pomfret is a Fellow of the Institution of Occupational Safety and Health (UK) and a Fellow of the Royal Society of Health (UK), in addition to being certified in Canada, the USA, South Africa and his native Britain.