

CHANGING
the
**WORKPLACE
SAFETY
CULTURE**

RON C. MCKINNON



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C U L T U R E

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Preface

Little if any significant progress has been made in the reduction of accidental deaths and injuries at the majority of workplaces. This is despite the fact that workplaces have implemented and followed safety innovations and new approaches. Many of these have proved to be ineffective in preventing injuries, fatal accidents, and other loss-producing events.

Some of these safety approaches and innovations are not tried and tested interventions, but are based on the whim of some safety organizations and various psychology departments using outdated and inaccurate safety research. These approaches have launched a trend in the safety industry that is followed almost blindly. No one seems to question their validity or effectiveness.

Reviewers of this book's proposal felt that 60% or more of the contents should refer to behavior-based safety methodology. I did not understand why until I realized that these reviewers had been taught that workplace safety culture was created, modified, or changed by the behavior of the workers. I agree that behavior has a role in safety culture, but I firmly believe that the state of the workplace, the safety management system, the leadership, and the organization is what changes behavior in the first place. Employees behave according to the expectations of the organization they work for.

This book demonstrates how changing the way an organization views and practices safety will impact on the behavior of all employees, including executive and line managers. This is not a book about behavior-based safety, but a guideline on how to establish a long-lasting integrated safety culture into an organization. It is about changing the safety personality at workplaces.

While the injury rate may appear to be decreasing, this could be due to many factors such as fear of reporting workplace injuries (the fear factor), manipulation of the rules defining reportable injuries, and other sidelining efforts. In some industries the rising fatality rate is a clear indication that safety is not improving, as fatality rates are the one downstream safety measurement that cannot be manipulated or fudged.

The only way to ensure that accidents and their consequences are tackled at the source is to identify and eliminate the workplace risks before, rather than after, the event. Sometimes this is done as an "add-on" function of management and while effective, it does not embed the ongoing safety process into the fabric of the organization's culture. The ongoing identification of workplace and worker risks must become a value to an organization and must occur automatically, as part of the culture of the organization, if accidental losses are to be eliminated. Safety activities must be integrated into the day-to-day business and become a way of life for management and employees.

Safety culture change is what many safety professionals do on a smaller scale, often with frustrating results. Safety campaigns, posters, training, and other efforts are ineffective, and their results are often short-lived because they do not change the way the organization does business. They are not embraced by the culture of

the organization and are often seen as a pain in the neck and a necessary evil. An active safety culture has the greatest potential for preventing accidents before they occur. A shift in safety culture therefore is the most effective ongoing key to safety success.

Acknowledgments

With so much information and work that has culminated in this document, numerous people need to be thanked. I thank the industrialists and miners who I have worked with over the last 38 years. I learned industrial safety from them and a great deal about what safety culture is all about and how they have changed their organization's safety culture.

The safety pioneers whom I have quoted in this book need to be thanked for their diligent research into one of safety's hidden secrets and for exposing what could be a key to injury reduction at the workplace—the *safety culture*, which is the heart of the problem.

To my many mentors, I thank you for sharing your safety knowledge with me and for the support and encouragement that you offered me. To my associates, colleagues, and “safety *boytjies*” with whom I have worked in many countries, it was a privilege to have met and worked with you. You taught me a great deal!

Thanks to Jonathan Klane for his comments, Dr. Bill Pomfret for his assistance, and Dr. Mark A. Friend for the personal notes that he wrote for this book.

For making this publication possible I thank my wife, Maureen McKinnon, who spent numerous weeks editing this manuscript. Her support warrants my deep gratitude.

The contents of this document are dedicated to the thousands of men and women in industry and mines who have died as a result of occupational injuries and diseases, and to the millions who have been and are injured every year in industries and mines around the world.

Every effort has been made to trace rights holders of quoted passages and researched material, but if any have been inadvertently overlooked, the publishers would be pleased to make the necessary arrangements at the first opportunity.

About the Author

Ron C. McKinnon, CSP, is an internationally experienced and acknowledged safety professional, author, motivator, and presenter. He has been extensively involved in safety research concerning the cause, effect, and control of accidental loss, near-miss incident reporting, accident investigation, and safety promotion.

McKinnon received a national diploma in technical teaching from the Pretoria College for Advanced Technical Education, a diploma in safety management from Technikon SA, South Africa, and a management development diploma (MDP) from the University of South Africa, in Pretoria. He received a master's degree in safety and health engineering from Columbia Southern University.

From 1973 to 1994, McKinnon was affiliated with the National Occupational Safety Association of South Africa (NOSA) in various capacities, including safety and health training and motivation. He is experienced in implementation of safety systems, auditing of safety systems, and safety culture change interventions. During his tenure with NOSA, he implemented safety systems and conducted training in seven different countries.

From 1995 to 1999, McKinnon was safety consultant and safety advisor to Magma Copper and BHP Copper North America. At BHP Copper he was a catalyst in the safety revolution in the copper industry that resulted in an 82% reduction in the injury rate, and an 80% reduction in the severity rate.

In 2001 he spent 2 years in Zambia introducing world's best safety practices to the copper mining industry. Thereafter, he accepted a 2-year contract in the Kingdom of Bahrain, Arabian Gulf, where he successfully implemented a safety culture change at the country's second largest employer.

After spending 2 years in Hawaii at the Gemini Observatory he retired back to South Africa. He consults to organizations in the United States and is often a keynote speaker at international safety conferences.

McKinnon is the author of *Cause, Effect and Control of Accidental Loss* (CRC Press, Boca Raton, FL, 2000) and *Changing Safety's Paradigms* (Government Institutes, Lanham, MD, 2007). His latest book, *Safety Management, Near Miss Identification, Recognition and Investigation*, was published by CRC Press in 2012. He also wrote the unpublished book "Safety and Health at Work: An Introduction."

Mr. McKinnon is a professional member of the American Society of Safety Engineers (ASSE), Tucson chapter past president, and an honorary member of the Institute of Safety Management. He is currently a safety consultant, safety culture change agent, motivator, and trainer.

1 Introduction

As we show in Chapter 2, The History of Safety and Safety Culture, the health and safety of employees in the workplace have a poor track record. Even today there is a fine balance in industry between making a bigger profit and reducing the profit by manufacturing products without causing harm to the employee or the environment.

IS SAFETY REALLY FIRST?

One of the safety paradigms discussed in *Changing Safety's Paradigms* (McKinnon, 2007) is that *safety is first*.

That is a real safety myth and until we can move that paradigm from *safety first* to *safety as important as*, we will not make progress in loss reduction. In reality what is first in a country's economy, what is first in the mining industry, the manufacturing industry, the service industry, and any other type of business? Money is first! Profits are first! Production is first! Employee attendance, dedication and outputs are first! Money and profits will always be first. Return on shareholders' investments is first! Making a bigger profit is first! Tonnage, number of units, quality standards, a "better than the competitor's product," these are all what is first! Bigger, better, faster selling, that's what's first! (p. 15)

Unfortunately the prevention of accidents has challenged managers for many years, and to date no silver bullet has been discovered to provide a quick fix to safety problems in the workplace. Many attempts have been made to prevent accidental injuries and deaths, and the trend has been, as with human nature, to take the path of least resistance. Safety gimmicks and so-called safety programs have been introduced, and these have been bought into and accepted as the quick-fix solutions, but judging by the rising death and injury rates, have apparently failed.

Some approaches to the management of safety at the workplace, however, have been and remain successful. When one reviews these stalwart approaches it is clear that they are the difficult route to take and are not one of the many quick-fix solutions to safety problems offered over the years.

SAFETY CULTURE

Safety culture is how the organization behaves with respect to safety when no one is watching. It is the organization's safety personality.

Successful, long-lasting, and ongoing approach to accident prevention and loss reduction is when the executive leadership commits to integrating the practices of safety into the culture of the organization. This means that the safety aspects of the business are no longer an add-on or a nice-to-have, or something that is required by

law, or forced upon them by a serious loss event, but simply part of the business all day, all night, 24/7. This embedded commitment to safety, which has become the way the organization does business, becomes the safety personality of the organization, and that is the safety culture of the organization and the workplaces that it operates.

This commitment, however, involves more than a cursory statement to promote safety at all costs. It involves committing the organization, its board of directors, managers, and employees to a long-term, ongoing, structured process aligned to the constant identification and elimination of workplace risks, which can only be achieved by the implementation and maintenance of a world's best-practice safety management system (SMS).

A number of definitions of safety culture have been published. The UK Health and Safety Executive (HSE) developed one of the most commonly used definitions of safety culture (HSE, 2005):

The product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety management. (p. 3)

The HSE (2001) also defines safety climate as follows:

The term 'health and safety climate' has been used to describe the tangible outputs of an organization's health and safety culture as perceived by individuals or work groups at a point in time. (p. 15)

According to Cooper (2000),

Culture can be seen as a concept that describes the shared corporate values within an organization which influences the attitudes and behaviors of its members. Safety culture is a part of the overall culture of the organization and is seen as affecting the attitudes and beliefs of members in terms of health and safety performance. (p. 111)

Deal and Kennedy (2000) defined organizational culture as "the way things get done around here" (p. 2), and therefore safety culture can be defined as *the way safety gets done around here*.

Although the above definitions refer to behavior and attitudes, one should not focus on the employees only. These behaviors, attitudes, and beliefs are also applicable to management, the directors, clients, and customers of that organization, *not* just the non-management employees.

SUBCULTURES

In addition to the overriding safety culture of an organization, subcultures are likely to develop when employees within the same organization experience different working conditions. In the mining industry there is a clear distinction in culture between underground and surface workers.

SAFETY CLIMATE AND CULTURE

According to Humphries (2012),

Safety climate can be defined as a “snapshot” of employees’ perceptions of the current environment or prevailing conditions which impact upon safety and is viewed as a temporary state that is subject to change depending on current circumstance.

Safety culture is commonly viewed as an enduring characteristic and is the attitudes, values, norms, and beliefs that a particular group of people share with respect to risk and safety. (Slides 3–4)

CORPORATE CULTURE

Corporate culture is a term used to describe the total beliefs, value systems, and processes that provide a company with its own unique character, flavor, and attitude. This is likened to a company’s personality. Most organizations possess some form of corporate culture. Almost every company has a set of values, norms, and goals that help to define what the business is all about.

At the foundation of any company culture are the standards that govern the operation of the business. These standards are usually expressed in terms of:

- Policies
- Procedures
- Rules
- Objectives
- Legal requirements

These standards define how the company will operate. This will include inter-departmental relationships, rules governing acceptable conduct, and how different departments relate to one another in the production process. They also define the line of communication established between management and departmental employees.

Above and beyond organizational and procedural factors, corporate culture is further formed by the attitude of everyone within the organization. When executives, managers, and employees are all on the same page as far as basic corporate values are concerned, it becomes possible to have general agreement on the relationships that must be in place to accurately reflect the desired corporate culture.

AN OVERVIEW OF SAFETY CULTURE

There are numerous involved and well-researched explanations and definitions of company and organizational culture available, and to discuss them all would serve no purpose. Oddly, safety culture does not deviate from the definitions of corporate culture and will give the reader a good idea as to how a safety culture is defined in broad terms. As Ardern (2012) puts it:

Remember that occupational safety and health is an area that both management and workers can see benefits in. Any process that brings about cooperation between all

levels of an organization can only strengthen its culture. It is easier to promote a safety culture than to bring about changes to productivity, quality and profitability. Yet, establishing and developing a positive safety culture is cost effective, increases productivity and efficiency and improves the organization's financial bottom line. (p. 4)

NEITHER A BUZZWORD NOR AN EASY FIX

With rising injury and work fatality rates employers are struggling once again to find the magic bullet that will fix all safety problems. Behavior-based safety seemed to work, as injury rates did fall slightly when the focus was placed on employees' behavior at the workplace. However, what few people realized was that the added attention focusing on employees, their behavior, and injury rates led to managers getting what they wanted, a lower injury rate. The reason they got a lower injury rate was that because of all the attention the injury rate was receiving, employees drove injuries underground rather than having to be identified as the employee whose behavior ruined the safety record.

Safety culture appears to be the new buzzword that defines whether an organization is safe or not. It appears to have become the new definition of the outcomes of employees' behavior, which it is not. It seems to indicate that the employees' behavior drives the safety culture, which it does not. It appears as a new quick-fix safety solution available to all, which it is not.

Safety culture is an ongoing, proactive commitment and action that integrates safety management into the heart of the organization and its workplaces, and which is facilitated by the implementation and maintenance of a world's best-practice safety management system that is risk based, management led, and audit driven. It involves implementing, maintaining, and driving this system, which consists of checks and balances, procedures, and standards, and which operates in well-defined management and employee realms of authority, responsibility, and accountability.

Safety culture is made up not of great sacrifices or duties, but of little things.

MSHA DEFINES SAFETY CULTURE

Below is a Mine Safety and Health Administration (MSHA) news release (2011):

The U.S. Department of Labor's Mine Safety and Health Administration (MSHA) today announced that it has imposed a fine of \$10,825,368, the largest in agency history, following its investigation into the April 2010 explosion at the Upper Big Branch—South Mine, which was operated by Performance Coal Co., a subsidiary of Massey Energy Co. The investigation followed an explosion that killed 29 miners and injured two—the worst U.S. coal mining disaster in 40 years. A report concludes that Massey's corporate culture was the root cause of the tragedy. MSHA has issued Massey and PCC 369 citations and orders, including for an unprecedented 21 flagrant violations, which carry the most serious civil penalties available under the law.

The results of the investigation led to the conclusion that PCC/Massey promoted and enforced a workplace culture that valued production over safety, and broke the law as they endangered the lives of their miners.

The report also stated that: The investigation found that the operator promoted and enforced a workplace culture that valued production over safety, including practices calculated to allow it to conduct mining operations in violation of the law.

Main said, “Every time Massey sent miners into the UBB Mine, Massey put those miners’ lives at risk. Massey management created a culture of fear and intimidation in their miners to hide their reckless practices. Today’s report brings to light the tragic consequences of a corporate culture that values production over people.” (pp. 1–2)

2 The History of Safety and Safety Culture

Safety and the prevention of injury affect us all. Every day as we go about our day-to-day business we are constantly exposed to dangers. Risks are taken. Our bodies are exposed to radiation, noise, dust, and fumes, and the risks of being involved in automobile collisions or being injured at work are ever present.

During our recreation time our homes can also be hazardous and these hazards can lead to falls, electrocution, and poisoning accidents, as well as fires. Safety concerns have been with humans from the days of the early caveman and will remain a vital part of our life forever. Self-preservation and the fear of being injured go back to early civilizations. Work, construction, and activities that increase the risk of injury have been carried out by humans for thousands of years.

To give the reader some insight to the history and formalization of safety and safety cultures, this chapter highlights some safety milestones over the years.

2100 BC

One of the earliest recorded safety policies was that of the Babylonian ruler Hammurabi. Hammurabi formulated regulations and legislation for safety. The Code of Hammurabi was carved on a dolomite column consisting of 3600 lines of cuneiform that can still be seen today in Paris. The code covered the requirements for ships and shipping as well as construction.

Part of Hammurabi's Code is quoted from the *Ancient History Sourcebook*, and translated by L.W. King as follows:

If a builder build a house for someone, and does not construct it properly, and the house which he built fall in and kill its owner, then that builder shall be put to death.

If it kill the son of the owner the son of that builder shall be put to death.

If it kill a slave of the owner, then he shall pay slave for slave to the owner of the house. (Rules 229–231)

Although strict, the necessity for safe and sound construction methods was clearly encouraged by their safety legislation, which is nearly 4000 years old.

THE HOLY BIBLE

The Holy Bible has numerous references to the safety of people, and Deuteronomy 22:8 states:

When you build a new house, build a parapet for your roof, lest someone fall from it and bring the guilt of blood upon your house. (v. 8)

The houses were constructed with flat roofs, and during the hot summer nights most of the inhabitants slept on the roof. As there was frequent movement of people, hand rails or parapets were needed to prevent people from falling and injuring themselves.

1500–1800 AD

England was the cradle of mechanized industry, but prior to 1500 was mostly an agricultural country, and manors or small, self-sustaining settlements were the only form of work activity. From 1500 the British steadily progressed in craftsmanship. Workers in wood, metal, and textiles attained new skills, and new products were developed and manufactured. As this revolution in industrial techniques began, mass production also began, and the production unit as we know it today started to develop.

1764

In Britain the textile industry was changed dramatically by the invention of the spinning jenny by Hargreaves. The water frame invented by Arkwright and the power loom by Cartwright in 1785 changed the textile industry to such an extent that it became the main economic activity. Farming was neglected to the extent that grain had to be imported.

This industrialization attracted people to the cities in their thousands. Man was starting to develop an environment that was already moving too fast. He could no longer cope, and he started to get hurt as a result of the many machines and contraptions that were being introduced. Factories started to spring up, and men, women, and children were recruited or drafted to work in these factories. Man no longer had complete control over his environment, or even over himself, as the taskmasters evolved to exploit him and get more work out of him. Long hours, up to 18 hours a day, took their toll on man, woman, and child. Disgraceful working conditions, with no thought of personal safety or health, contributed to an extremely high death rate. Industrialists became obsessed with becoming rich.

The first spinning mill was built in the United States in 1770, and industry started to grow.

1795

As a result of the invention of the automatic spinning machines, the textile industry developed from a cottage industry to a factory industry. There arose a great demand for cheap labor, and a convenient supply was found from the pauper children in the care of the public assistance of authorities of large towns. They were described as the unknown, unprotected, and forgotten children. They worked under extremely difficult and unsanitary conditions for periods exceeding 14 hours a day. Workhouses would sell orphans and abandoned children as “pauper apprentices,” working without wages for board and lodging.

As technology advanced, spurred on by the development of the steam engine, more factories were built and mechanized, and more people of all ages were pressed into service to work in these “hell houses.” People young and old, many of them living and sleeping in the factories, were exploited by the industrialists. Children were virtually sold into bondage, existed on meager food handouts, wore nothing but old rags, and often received no pay.

1800

Little or no attention was given to the health of working people during this period. The early reformers and legislators began to take action but confined the attention to hours of duty and environmental conditions. Safety was not a prime consideration, but work hours and conditions for children were improved.

There were no hygiene facilities in the early workhouses, and at first, no running water either. So these factories, or workhouses, as many of them came to be known, were soon rife with the stink of death. People got injured, died of overwork or starvation, from disease, or were killed by the thousands in the overcrowded mechanized death traps.

This loss of life appeared to be of no particular consequence to the industrialists, whose overseers dragged the dead aside and forced some other poor hapless creatures to take their place. Working conditions were so cramped and unnatural that the children grew up deformed from tending machinery that required them to crouch in awkward positions for hours on end. Children were the ideal laborers, as they were cheap, being paid just 10 to 20% of a man’s wage, and could fit into small spaces, such as under machinery and through narrow tunnels.

A young man who pulled a coal tub along a mine gallery was called a “drawer” and had to crawl on his hands and knees because the gallery was so small.

Professor Jane Humphries (2010) wrote in “Childhood and Child Labor in the British Industrial Revolution”:

The average height of the population fell in the 1830s as an overworked generation reached adulthood with knock-knees, humpbacks from carrying heavy loads and damaged pelvises from standing 14 hours a day. Girls who worked in match factories suffered from a particularly horrible disease known as *phossy jaw*.

Fumes from the phosphorus into which matches were dipped ate at their jawbones, leaving them with empty cheeks that oozed foul smelling liquid, brain damage and eventually death from organ failure.

Children employed as mule scavengers at cotton mills would crawl under machinery to pick up cotton, working 14 hours a day, and six days a week. Some lost hands or limbs, others were crushed under the machines, and some were decapitated. (*Daily Mail* news article 1312764)

1802

In England the Health and Morals of Apprentices Act was passed. This act had very little impact because it only covered the pauper apprentices and did not cater for the

“free” labor. Not much attention was paid to this act, and the inspectors were honorary visitors chosen from the local magistrates and clergy.

1811

In 1811 Du Pont posted the first written rules for employee safety in the United States. James A. Klein (1989) relates:

Management also gave personal instruction on how to safely roll powder kegs and how to avoid dropping them. By 1811, E. I. du Pont issued official safety rules to help ensure safe manufacture.

Mottel et al. (1995) state:

As the greatest order is indispensable in the manufacturing as well as for the regularity and the security of works, than the safety of the workmen themselves, the following Rules shall be strictly observed by every one of the men employed in the factory. (p. 3)

One of the rules prohibited “any kind of play or fun in the factory.”

1833

In 1833 the Factory Act was introduced in Britain. It empowered the government to appoint paid factory inspectors and the four divisions into which Britain was divided; each had its own inspector. This act only applied to textile mills, and some 12 inspectors had to inspect in excess of 3000 mills.

This act also dealt with hours of work and environmental conditions. Little reference was made to safety, but it did make provision for factory children to receive 12 hours of schooling per week. The first factory inspectors under this act also became the first school inspectors, and their task was soon made clear to them as a result of the severe injuries that led to suffering among the working people.

One of the original four divisional inspectors, Leonard Horner, wrote a report containing recommendations for safety legislation. In his report he emphasized the fact that the foreman is the key person responsible for accident prevention. One of the first recorded court cases took place when Lord Shaftsbury took up the case of a young girl who had been severely injured because of an unguarded shaft. He won the case against the employers, who were ordered to pay damages. This case had the direct effect of drawing public attention to factory accidents.

1841

On March 22, 1841, the first factory legislation appeared in France. This legislation concerned the employment of children in factories and government workshops using mechanical power or carrying on continuous processes. It also provided for a system of safety inspections.

1844

During this year clauses relating to the fencing of machinery and the providing of other safeguards were incorporated into the Factory Act of 1802. The reporting of certain accidents was also included in the act.

The Factory Act of 1844 further reduced hours of work for children and applied the many provisions of the Factory Act of 1833 to women. The act applied to the textile industry, and some of its main features were as follows.

1. A half-time system for children was introduced. They were to receive education during the other half of the time that they were not working.
2. Mealtimes were fixed.
3. The power of the magistrates to interfere with inspectors was curtailed, and all regulations were in the future to be made by the Secretary of State.
4. All complaints were to be heard by a panel of two magistrates—neither of whom was to be related in any way to the factory owner.
5. Inspectors were to have the power to appoint deputies for themselves, as well as surgeons.
6. The surgeons' duties were to provide certificates of fitness.
7. A comprehensive register of children and young persons working in the factory had to be kept.
8. Women and children were not to clean machinery in motion.
9. Machinery was to be guarded in ways specified by the inspector.

In Britain, laws were passed in 1842 and 1844 that improved working conditions in mines.

1850

In 1850, the Inspection of Coal Mines Act was promulgated. The first mine inspectors were appointed and were given powers to enter mines to evaluate their safety. Accidents had to be reported within 24 hours, and only competent persons were permitted to work on the colliery as engine men, banksmen, and onsetters. Competent persons were defined as skilled males over the age of 18.

1867

One of the first movements for the prevention of industrial accidents was founded in 1867 by Frenchman Engel Dollfus. One of his principles was, "The employer owes more than wages to his workers." He was also responsible at a later date for publishing a book describing all the effective safeguards used during that period. This organization, The Society for the Prevention of Accidents, was the forerunner of the Industrial Accident Prevention Association of France.

1869

Pressure from one of the first national labor unions in the United States, the Knights of St. Crispin, forced the United States to join the movement of reform. Massachusetts was the first American state to establish a State Bureau of Labor. It was the first state to pass a law requiring the appointment of factory inspectors, and it also enforced the 10-hour day for women and the guarding of dangerous moving equipment.

1878

The tide of reform surged forward, and there was less opposition to the reform. Safety emphasis grew and more factory acts were passed. By 1878 almost all the manufacturing concerns were incorporated under these acts.

1883

In 1883, in Germany, Chancellor Otto von Bismark, in an effort to undercut socialists by demonstrating to the working class that his government was in favor of social reform, instituted workmen's compensation and social security insurance.

1885–1886

After 1885 the principle of employers' liability in respect to employment injury began to appear in the legislation of the different states. New York passed factory inspection legislation. Massachusetts was the first state to pass an act requiring that accidents be reported on June 1, 1886.

1894

The Rand Mutual Assurance Co. Ltd. (Rand Mutual) was founded in 1894 by three mining companies on the Witwatersrand in South Africa as a nonprofit mutual assurance company with the purpose of administering workers' compensation for mining industry employees injured in the course and scope of their employment.

1906

The Pittsburgh Survey disclosed the frequency and severity of industrial injuries in the United States and shocked both management and society. These investigations counted more than 500 on-the-job deaths and 500 serious and disabling injuries in one year in Pittsburgh County (Eastman, 1910).

This led to:

- Workmen's compensation acts being passed in various states
- The establishment of the U.S. Bureau of Mines
- The formation of State Safety and Industrial Hygiene Departments
- Industrial diseases becoming a prominent issue

- The American Occupational Medical Association being formed in 1916
- Industrial fire protection being considered on a national basis

1910

Workmen's compensation was started in Canada. Chief Justice of the Province of Ontario Sir William Bruder was appointed to inquire into the laws of other countries' workmen's compensation.

In the United States on October 11, 1911, a group of 35 safety inspectors formed the United Society of Casualty Inspectors in New York City. The group came together following the devastating Triangle Shirtwaist Factory fire on March 25, 1911, a tragedy that took the lives of 146 workers and forever changed regulations of workplace safety. In 1914, the organization changed its name to the American Society of Safety Engineers (ASSE). The society relocated to Chicago in 1924, moved to Park Ridge, Illinois in 1967, and has been headquartered in Des Plaines, Illinois, since 1985. Today, ASSE represents more than 34,000 safety, health, and environmental (SH&E) professionals who work across all industries around the world protecting people, improving business, and safeguarding the environment.

1913

Arising out of concern for the high accident fatality rate in South African mines, a subcommittee was appointed to investigate this matter and make recommendations. As a result, the Prevention of Accidents Committee was founded in October 1913. It was one of the world's pioneers in safety and was founded around the same time as the National Safety Council in the United States.

The National Safety Council was established in 1913. It was the first volunteer group organized initially for industrial safety. It was formed as a direct result of increasing public pressure, federal inquiries, and rising injury rates.

1915

The first Workmen's Compensation Act was passed in Ontario, Canada, in 1915. The Voluntary Safety Movement began under a proviso of the Workmen's Compensation Act of Ontario that permitted and encouraged the founding of volunteer safety associations of employers. This system still exists in Ontario.

1916

Industrial diseases received more attention during this period with the chartering of the American Occupational Medical Association.

1920

The American Standards Association was formed from the American Engineering Standards Committee. Nearly 200 standards had been approved, and some 160 were

under review in the late 1920s. In 1921, 46 of the states in America had workmen's compensation laws, and the cost of work accidents was recognized as the cost of doing business.

1932

Several prominent South African industrialists, of whom Sir Ernest Oppenheimer was a leading figure, decided that there was a great need to form an association that would concern itself with safety in industry. The prevention of road and home injuries was also a pressing need, and in June 1932 the Safety First Association of South Africa was formed.

1937

The Factory's Act of 1937 paved the way as the first major factory legislation for nearly 40 years in Great Britain.

1941

The Factory's, Machinery and Building Work Act (Act 22 of 1941) was promulgated in South Africa. This legislation was to remain the main industrial legislation until replaced in 1983.

The Workmen's Compensation Act (Act 30 of 1941) was introduced in South Africa. The objective of the Workmen's Compensation Act is:

To amend and consolidate the laws relating to compensation for disablement caused by accidents to or industrial diseases contracted by workmen in the course of their employment or for death resulting from such accidents and diseases. (Workmen's Compensation Act, 1941, p. 2)

This legislation was changed to the Compensation for Occupational Injuries and Diseases Act (Act 130 of 1993) in 1993.

1951

On April 11, 1951, the National Occupational Safety Association (NOSA) was formed in South Africa. The registrar of companies, J. van Weyereren, signed the documents that brought NOSA into existence as a public, non-profit-making company with two main objectives:

To promote the prevention of occupational accidents and diseases and to endeavour to eliminate their causes and results in commerce and industry on a national basis by acting as a national body and with limitation by the foregoing to promote and encourage occupational safety work and to carry on occupational safety propaganda of every kind.

To deal with all matters and questions of a national character appertaining to occupational safety in South Africa and to act generally as an advisory body on all such matters. (NOSA, 1988, p. 7)

NOSA's objectives have been summarized in the acronym GETM: the *guiding, education, training, and motivation* of all echelons of managers and workers in the techniques of safety. NOSA was one of the first organizations to develop a risk-based safety program, the audit-driven NOSA Five-Star Safety and Health Management System, in the early 1970s. This system was exported to and used in no fewer than eight countries.

MID-1950s

During the mid-1950s the Safety First Association's magazine was changed from *Safety First* to *Industrial Safety*, and finally to *National Safety*. *National Safety* ranks with some of the oldest and longest-established specialized publications in the country and can be found in libraries throughout the world.

1956

Legislation for the safe working in mines in South Africa was introduced by the Mines and Works Act (Act 27 of 1956). The regulations appertaining to safety details were included in this legislation.

1960s

One of the distinct safety benchmarks during the 1960s was the advancement of the vehicle safety movement in the United States. Ralph Nader brought about a general awareness of vehicle safety by publishing his book *Unsafe at Any Speed*. Although his prime focus was on the automobile safety area, he made industrial safety a matter of national concern. He forced management to discuss safety standards, statistics, and management theory, and brought about an awareness of safety among consumers. Today the safety features of cars are a strong selling point, and crash ratings are required by law.

1968

The Canadian Safety Council, a nongovernmental, nonprofit public service organization dedicated to accident prevention on the road, at home, and in industry, was formed. The council was formed through a merger of the National Safety League, the Canadian Highway Safety Association, and the Canadian Industrial Safety Association.

1970

The Walsh-Healy Public Contracts Act (1936), The Green Book (1942), and other acts culminated in the enactment of the Occupational Health and Safety Act of 1970 (OSHA) in the United States. Its main emphasis is injury prevention, which encourages avoidance and preventative actions. It makes little reference to the behavioral component in avoiding and preventing downgrading incidents, but concentrates on the work environment.

According to Stender (1974), after World War II ended, workplace accident rates remained high and began to rise. In the 2 years preceding OSHA's enactment, 14,000 workers died each year from workplace hazards, and another 2 million were disabled or harmed.

1974

The Health and Safety at Work Act was introduced into Britain.

1983

The Machinery and Occupational Safety Act (Act 6 of 1983) was introduced to replace the Factory's Machinery and Building Works Act (Act 22 of 1941) in South Africa. In 1991 the Minerals Act, Works Act (Act 50 of 1991) replaced the Mines and Works Act, and in 1996, the Mine Health and Safety Act was introduced in South Africa.

1993

South Africa introduced new safety and health legislation in the form of the Occupational Health and Safety Act (Act 85 of 1993). This OHS Act replaced the Machinery and Occupational Safety (MOS) Act, and in 1994 the Compensation for Occupational Injuries and Diseases Act (Act C of 1994) replaced the Workmen's Compensation Act.

HISTORICAL CULTURE OF BLAMING EMPLOYEES FOR ACCIDENTS

During the industrial revolution more and more injuries and work-related fatalities occurred because of the poor work conditions, hazardous environments, and unguarded machinery and mechanisms. Management used a number of defenses to absolve themselves of any responsibility for the deaths and injuries that occurred at their mills, factories, and workplaces. The four most commonly used defenses follow.

THE ASSUMPTION OF RISK

The assumption of risk prevented the plaintiff employee from claiming against the employer if the employer could prove that the employee voluntarily and knowingly assumed the risks at issue inherent to the dangerous activity in which he was participating at the time of his injury. Once employees seemingly assumed the risk of working under those hazardous conditions, the owner felt no obligation to improve the safety of the work conditions, as the assumption of risk by the workers did away with his duty of care.

Although a simple argument, it excluded many an injured worker from claiming for injuries against the employer or factory owner. In simple terms, the defense was, "If you knew it was dangerous to work here, why did you take the job?"

MASTER AND SERVANT ACTS/MASTERS AND SERVANTS ACTS

During the 18th and 19th centuries these acts were designed to regulate the relationship between employers and employees. The acts are generally regarded as heavily biased toward employers, designed to discipline employees and repress the joining of workers in organized labor or trade unions. The law required obedience and loyalty from servants to their contracted employer, with infringements of the contract punishable before a court of law, often with a jail sentence of hard labor. This law made it almost impossible for an injured employee to claim any form of compensation from the employer for injuries sustained on the job.

CONTRIBUTORY NEGLIGENCE

Contributory negligence in common-law jurisdictions is a defense to a claim based on negligence. It applies to cases where a plaintiff or claimant has, through his or her own negligence, contributed to the harm he or she suffered.

For example, a pedestrian crosses a road negligently and is hit by a driver who was driving negligently. The pedestrian has contributed to the accident. Another example of contributory negligence is where a plaintiff voluntarily disregards warnings and assumes a certain level of risk.

Contributory negligence is sometimes regarded as unfair because under the doctrine, a victim who is at fault to any degree, even only 1% at fault, may be denied compensation entirely, which is known as pure contributory negligence. Contributory negligence can be compared to comparative negligence, where the negligence of the plaintiff is not a complete defense of the defendant but can reduce the damages.

COMPARATIVE NEGLIGENCE

Comparative negligence is a partial legal defense that reduces the amount of damages that a plaintiff can recover in a negligence-based claim. It is based upon the degree to which the plaintiff's own negligence contributed to cause the injury. When the defense is asserted, the fact finder, usually a jury, must decide the degree to which the plaintiff's negligence vs. the combined negligence of all other relevant factors contributed to cause the plaintiff's damages. It is a modification of the doctrine of contributory negligence, which disallows any recovery by a plaintiff whose negligence contributed, even minimally, to causing the damages.

HISTORIC SAFETY CULTURE CARRYOVER

These four historic defenses were the beginning of the shirking of, and excuses for, safety responsibility. By putting the blame on the worker, the safety burden is shifted to the employees, and statements such as "The majority of injuries are as a result of the unsafe behavior of the worker" reinforce this incorrect assumption and misdirect well-intended safety efforts. Safety culture shift involves recognizing the principle of multiple causes and forces employers to look beyond the injured worker to seek root causes of accidents.

THE CULTURE OF BLAME CONTINUES

Despite our progress in manufacturing and mining, a lot of our accident prevention methods are wrongly aimed at the high-risk behavior of the worker. The idea that the majority of accidents are caused by the high-risk behavior of workers (contributory negligence) has been the prevailing way of thinking. Believing this, employers have embarked on extensive behavior-based safety programs aimed primarily at the behaviors of employees, once again leaving management with little or no safety responsibility or accountability.

This reverts to the principles of contributory and comparative negligence, defenses used by management hundreds of years ago to absolve themselves of safety responsibility and put the blame on the employees. Bill Hoyle (2005) explains,

The primary theory used to explain the causes of industrial accidents is that mistakes by workers are responsible for virtually all accidents. This is the foundation on which health and safety programs have been based for decades. Therefore, the ultimate goal of corporate safety programs and local union safety committees is generally, the same, to have zero worker injuries. Safety attention focuses on finding ways to get unsafe workers to change their ways. (p. 2)

PRESUMPTION

At one particular organization, a worker was injured, and most of the supervisors immediately presumed that the injured party was guilty of causing the accident. Without exception, they immediately focused on what the person did wrong, and agreed that the injured person had brought the pain and suffering upon himself or herself. In another organization, an accident investigation form was preprinted with the words "Employee failed to ..." under the column that asked "What caused the accident?"

Whatever happened to the fact that a suspect is innocent until proven guilty? In a court of law this pertains, but safety is different. Safety seems to have become a prosecution of the innocent, and therefore another reason why safety management has such a poor reputation.

The injured person is often an innocent victim of an undesired event. An injured person may have done nothing to contribute to his or her injuries. He may have been injured by the unsafe behavior of one of his colleagues. The injured party may have fallen into a trap set by somebody else. Without a thorough and unbiased accident investigation, one cannot point a finger at any individual, least of all the injured employee. Bill Hoyle (2005) says,

The basic premise of behavior modification programs is that the primary cause of accidents is worker error. This blame-the-victim concept provides little opportunity for effective accident prevention. Behavior modification does not focus on the fundamental safety problems that we face in the continuous process industry. (p. 2)

EMPLOYEE FAILED TO ...

I remember the case of an underground miner who was working in an area where there was no illumination. The only source of light was from his mining cap lamp. The walking surface was full of mud and covered in 6 inches of water. One day, while walking down this drift, he stepped into an 18-inch hole, twisted his ankle, and fell to the floor in agony. I was sent a copy of the accident investigation report. The portion entitled “What caused the accident” read: “Employee failed to look where he was walking and twisted his ankle.” I was rather amazed at this statement, as due to the total absence of lighting, it was impossible for him to see where he was walking. Even with good lighting he wouldn’t have been able to detect the hole hidden under the surface of this muddy water.

The portion of the form calling for remedial measures read, “Steps taken to prevent a recurrence.” The answer: “Coached employee to exercise more caution when walking down the drift.” Coaching the man to take more caution? What about the hole? Nothing was done about the hole or the lighting, which were the real causes of the accident. The hole is possibly still there to this day. The basic causes were never identified, but the finger was pointed at the employee.

CONCLUSION

The safety movement started many years ago and is constantly being improved by modified legislation and safety systems. As history has shown, safety laws have forced a change for the better, and even today many workplaces regard adhering to safety legislation as the ultimate in safety performance. Legislation should always be accepted as a minimum standard for good safety practices, not the optimum. Past experience has shown that motivation and encouragement toward safe practices is more successful than punishment or discipline. A basic standard has to be set by legislation, but good management, from the chief executive officer down to the line management, can contribute greatly to the prevention of accident and occupational diseases by integrating safety management into the day-to-day management of the organization, thus creating a positive ongoing safety culture.

It is clear that safety at the workplace has been driven throughout the ages by some form of law or other. Safety cultures have developed mostly as a result of legislation dictating how to protect employees. On the contrary, numerous organizations understand that safety is a good core practice, as there are legal, moral, and economic benefits to a positive safety culture. These organizations include many of the top 100 companies in the world.

The understanding that both management and employees are partners in accident prevention and risk management, and that together they can create and maintain a safe workplace with a proactive safety culture, is needed to change the workplace safety culture.

3 Safety at the Workplace

HOW WELL ARE WE DOING?

In 2010, in the United States, some 4,690 employees were killed in accidents while at their workplaces carrying out their normal duties. In the same year, nearly 3.1 million nonfatal workplace injuries and illnesses were reported among private industry employers, resulting in an incidence rate of 3.5 cases per 100 equivalent full-time workers. According to the U.S. Bureau of Labor Statistics (2010), some 900,000 of these cases involved days away from work, more than 200,000 were as a result of falls, 185,000 were back injuries, and 370,000 sprains, strains, and tears were reported.

Surprisingly, the fatality and injury rates are not showing significant reductions despite government's efforts and the efforts of the safety fraternity. Working on the premise that at least 90% of all accidents can be prevented, we have a long way to go in our accident prevention efforts. One of the barriers to the achievement of a significant reduction in these rates may be that insufficient effort is leveraged by organizations to make the workplace safe. Too much time and effort is spent focusing on the consequences of accidents rather than their cause.

CONSEQUENCE CONCENTRATION

Some of the latest (seemingly well-meant) safety mottoes or statements refer to a "zero harm" workplace, or words to that effect. While this idea is well intended, it tends to focus all safety efforts on the end result of the accident chain—the harm. The harm, or consequence, is the outcome of a series of small blunders. This consequence and its severity have also been subjected to a series of luck factors that have determined the course of the blunders and largely determined the final outcome.

TREATING SYMPTOMS

To focus on the outcome is therefore treating the symptom of the problem and not the cause. If all the focus is placed on the harm outcome of an accident, what about all the near-miss events and the property damage accidents? These also have potential to cause harm but do not due to factors that we sometimes cannot explain; therefore they should not be ignored. Would a mission of minimizing the workplace risk not be more apt?

For years safety pioneers have warned that the outcome of an accident is impossible to accurately predict, as chance or good fortune sometimes prevails. However, we have ignored these warnings and based the main source of safety measurement on this outcome—the injury, which is largely fortuitous. After examining thousands of near-miss incidents, it appeared clear that many of those close calls could have had

severe injury consequences under slightly different circumstances. What determines those circumstances? Could it be luck, or good or bad fortune? (Figure 3.1)

This [Heinrich's] fourth axiom is perhaps the most significant statement in the safety management profession. What Heinrich is saying here is that the degree of injury depends on luck, but that the accident can be prevented. What he further indicates by this axiom is that while the accident can be prevented, the severity is something over which we have little or no control. (McKinnon, 2000, p. 169)

INJURIES ALMOST IRRELEVANT

In the bigger safety picture the resultant injury, or harm, is almost insignificant in relation to what it indicates. What an injury indicates, or should indicate, is that there has been a failure of the management system that has triggered off a series of events, one of the consequences in this case having been an injury. This is when safety becomes active and the injury becomes a statistic that traditionally determines the difference between a safe and an unsafe organization.

Modern safety philosophy teaches that for every injury-producing event there are literally hundreds of similar breakdowns that under slightly different circumstances could have resulted in a loss. They didn't cause loss in most instances because of the luck factors, but should not be ignored because many have potential to cause loss, and nevertheless indicate system failures.

UPSTREAM ACTIONS

Safety culture change is the sum of all the activities aimed to reduce risk and subsequent loss at the workplace. It involves upstream activities (before the loss), midstream activities (during the loss), and downstream activities (after the loss). Upstream activities are the most important actions in safety management and involve all the management controls required by a structured SMS.

Upstream activities include:

- Safety and health committee functions
- Safety included in job descriptions
- Safety objectives established
- Standards written and enforced
- Authority, responsibility, and accountability assigned
- Proactive developed safety department
- Permit systems in place
- Audits conducted regularly
- Emergency evacuation drills
- Fire prevention and protection
- Safety representatives appointed
- Safety policy promoted
- Ongoing safety training
- Near-miss incident reporting system

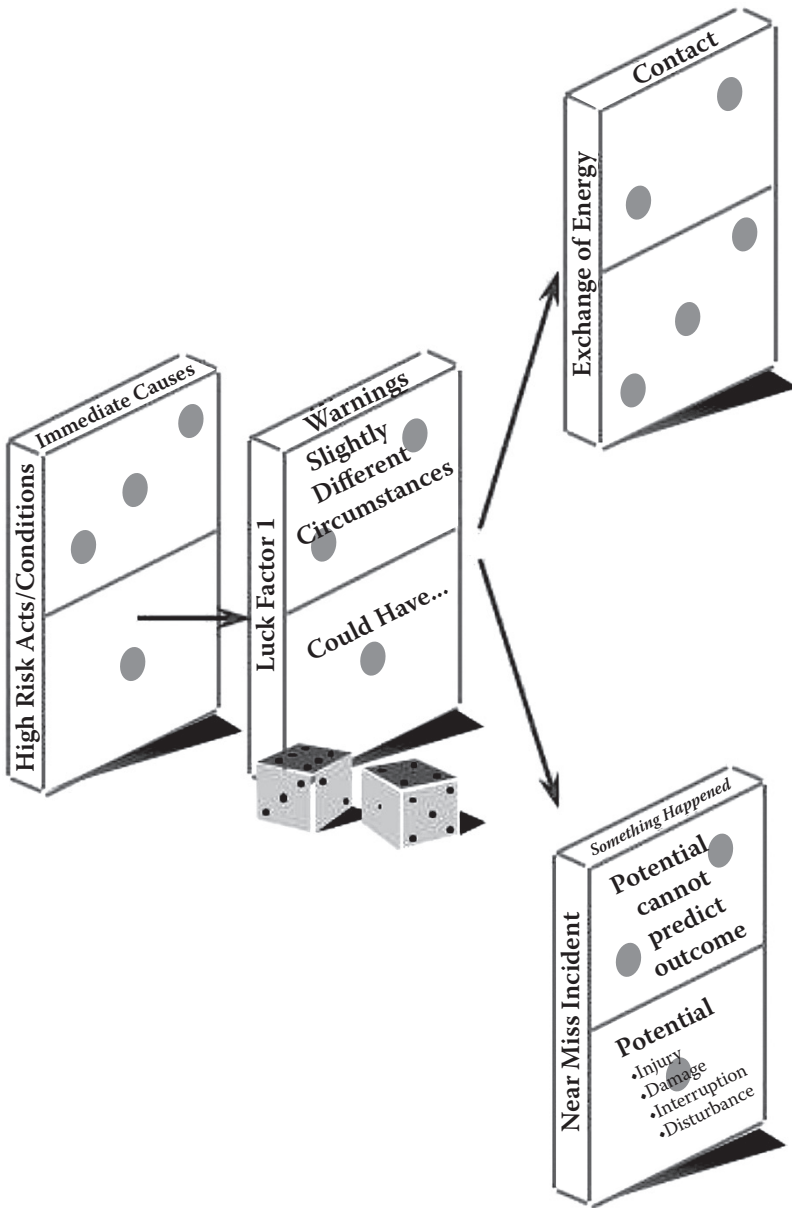


FIGURE 3.1 Part of the accident sequence showing the luck factor.

Midstream activities include:

- Personal protective equipment program
- Environment control program
- Energy control system
- Machine guarding
- Hearing conservation actions

Downstream activities include:

- First aid facilities
- Accident investigation
- Injury statistics
- Emergency response
- Refuge rooms

Upstream activities are those activities that are part of the safety system before there is a loss as a result of an accident. They are also referred to as precontact activities. This is proactive safety.

Contact or *midstream activities* are actions carried out at the time of the exchange of energy that do not prevent the exchange of energy but form a barrier between it and the person. For example, personal protective equipment does not prevent the accidental flow of energy but absorbs the energy, leaving the wearer unharmed. This is also referred to as contact control.

Downstream activities (post-contact controls) are all the actions and preparations to recover from an accident or other emergency. They do not necessarily prevent the event occurring but prevent the consequences by having certain measures and facilities in place in case of emergency.

There are many grey (overlapping) areas between all three areas of control. Some upstream controls have an impact on downstream and midstream controls, and vice versa. Building a safety culture involves upstream, midstream, and downstream actions, activities, and measurements. It ensures a comprehensive approach to risk reduction that focuses on all aspects of a structured approach to a safety system.

NEAR-MISS INCIDENTS

A vital element of a safety management system and a critical step in safety culture shift is a system where employees can report near-miss incidents without fear of repercussion.

The main benefit of a near miss recognition, reporting, investigation and remedy (NEMIRR) system is the fact that by recognizing near miss incidents and taking action to correct the underlying problems, an organization will not only reduce the number of near miss incidents, but more importantly, will reduce the number of actual accidents in the future. Reducing the number of near miss incidents will fix the problems before they can cause accidents. Another major benefit of near miss reporting is that it is

easier to get to the root causes of the event since nobody has been injured or killed which means there is no pressing need for a cover-up.

Near miss incidents can also be defined as: close calls that have the potential for injury or property loss. Most accidents can be predicted by close calls. These are accidents that almost happened or possibly did happen but simply didn't result in an injury this time around. In fact, all the stages of the accident were present in the correct sequence except for the exchange of energy segment that would have caused the injury, damage, loss or a combination thereof. (McKinnon, 2012, p. 35)

MODERN SAFETY CULTURE

A dynamic safety culture recognizes these near-miss incidents as warnings as well as opportunities, and encourages employees to report them so that action can be taken on the warnings before they recur, perhaps with disastrous results. Not only will an organization be addressing what are in many instances accident precursors, but it will also create a communication network from employees directly to the chief executive officer. This communication channel, in many cases anonymous, is one of the key factors in forging a positive safety culture.

The same reporting system is vital for other high-risk situations, including lack of proper equipment, machine failure, or other hazards. Often this important feedback of safety information is stifled by the culture of an organization that does not recognize its value and creates a fear of reporting at the workplace.

Safety culture is about the reduction of risk on an ongoing basis so that loss is prevented. Fewer accidents are experienced, and events with severe consequences are less likely to occur in a workplace that has a proactive safety culture.

It is apt at this stage to redefine the modern safety management terms and definitions used in this book. There still exists confusion in the safety industry concerning the words *accident* and *incident*. The term *incident* is so widely used and misused that the term *near miss* has almost become obscure. Because near-miss incident recording is one of the main elements in a world's best practice (i.e., meeting the highest international safety standards) SMS, it's important that it be redefined and renamed so that its important identity can be maintained and recognized.

DEFINING AN ACCIDENT

An accident is an undesired event often caused by unsafe acts or unsafe conditions that results in physical harm to persons, damage to property, or business interruption. From here on this publication will describe an accident as: *an undesired event that results in harm to people, damage to property, or loss to process, product, or production.* (Loss is experienced.)

DEFINING AN INJURY

An injury is one of the many possible outcomes of an accident and is the most prominent consequence. It is tallied and used as a measure of safety effort, safety failure, or safety success. An (*accidental*) *injury* is defined as *the bodily hurt sustained as*

a result of an accidental contact. This includes any illness or disease arising out of normal employment.

INJURY COMPARED TO ACCIDENT

Most people confuse accident and injury. Not all accidents result in injury, and there is a definite distinction between the terms *accident* and *injury*.

An accident is the event and an injury is a consequence or end result of the event. The end result may have multiple consequences, such as property or equipment damage, process interruption, etc. The severity of the injury caused by an accidental event is difficult to predetermine or define. The “luck factors” referred to previously explain how the severity is sometimes determined by absolute fortune, either good or bad.

Trying to reduce the severity of the injury is a post-contact safety control. Quick evacuation, prompt medical treatment, adequate medical facilities, and trained personnel all contribute to the reduction of the severity of the injury. The recuperation time after an injury depends on numerous factors. It also determines the number of shifts lost as a result of the accident. These losses in turn determine the total cost of the accident.

DEFINING A NEAR-MISS INCIDENT

Near-miss incidents are also known as close-call incidents, close shaves, and warnings or near hits. Other terms are close calls, or in the case of moving objects, near collisions. Near-miss incidents have also sometimes been termed near hits.

A near-miss incident is defined as:

- An undesired event that, under slightly different circumstances, could have resulted in harm to people, property damage, business disruption, or a combination thereof
- An accident with no injury or loss
- An event that narrowly missed causing injury or damage
- An incident where, given a slight shift in time or distance, injury, ill-health, or damage easily could have occurred, but didn't this time around

The definition that will be used throughout this publication is: *an undesired event that, under slightly different circumstances, could have resulted in harm to people, property damage, or business disruption.*

WORK-RELATED AND NON-WORK-RELATED ACCIDENTS

The terrific injury and death toll caused by industrial accidents occurs within workplaces including mines, manufacturing plants, chemical refineries, onboard fishing vessels or motorized vehicles, in commercial undertakings, and any other place of work. A workplace can be summarized as any place where normal work is carried out.

Accidents that occur when employees are not at work and where the accident did not arise in the course of normal employment are termed off-the-job accidents. Another

type of accidents are recreational accidents: accidents that occur during recreational activities, such as playing sport, camping or hiking, or other non-work-related activity.

Although primarily dealing with safety culture change at workplaces, non-work-related activities are important to the discussion because the work safety culture often rubs off on employees, who tend to take the safety concepts home with them and apply them both at home and at play. Structured SMS should have an element dedicated to off-the-job safety promotion as well.

HOMES MORE DANGEROUS THAN WORKPLACES?

Due to the tremendous pressure placed on workers to be “injury-free,” a number of workplace injuries are never reported but are disguised to reappear as home or sport-related injuries. Why else in the United States would there be three home injuries for every one injury recorded in the workplace?

According to the National Safety Council (NSC),

U.S. workers are safer on the job than in their homes and communities. Home and communities deaths are up 75 percent. According to the National Safety Council *2011 Injury Facts*, for every worker killed on the job, approximately 15 workers are killed off the job. Nearly three times as many workers suffer nonfatal injuries off the job as on the job. (NSC, 2012b)

In 2009 it is estimated that there were 90,300 home and community-related unintentional injury deaths in the United States. An additional 30.5 million people suffered nonfatal medically consulted injuries due to home and community-related incidents.

A safe and healthy workforce is good for business. Off-the-job safety and health is the extension of an organization’s on-the-job safety culture. Off-the-job programs educate employees about bringing their safe and healthy workplace practices to their homes and their families. A growing number of businesses now consider off-the-job safety and health critical to good management of health care costs, productivity, and profits. Off-the-job safety and health programs can help improve well-being as well as save the lives of employees and their families. (NSC, 2012b)

STATUS QUO

The workplace is far from safe. Reviewing the rising injury and fatality rates, it is clear that major changes to the way safety is practiced need to take place. A colleague of mine put it in perspective when he said that we are so busy chasing after the behaviors of employees that we have jumped onto the horse and landed on the other side. He said that there has been such a focus on the employees and their safety behavior that we have neglected to fix the workplace and have let management off the hook and almost absolved them of any safety responsibility.

Changing worker behavior is one of the least effective methods for accident prevention. Workers make occasional errors because they are human. There is a natural error rate for even the most highly trained and drilled workforce. (Hoyle, 2005, p. 10)

Referring to employee behavior observations that most industries consider to be a complete safety system, Donald Lorenzo (2008) stated:

No amount of behavior observation will create an error-free, injury-free workplace. The Chemical Manufacturers Association explains in a CMA publication that “enlightened managers realize that ... most mistakes are committed by skilled, careful, productive, well-meaning employees.... Human error is a natural and inevitable result of human variability in our interactions with a system.” (Lorenzo, pp. 4–5)

Bird and Germain (1992) support this argument:

Also, an increasing number of safety leaders confirmed the results from research in quality control that 80 percent of the mistakes (sub-standard/unsafe acts), that people make are the result of factors over which only management has control. This significant finding gives a completely new direction of control to the long-held concept that 85–96 percent of accidents result from the unsafe acts or faults of people. This new direction of thinking encourages the progressive manager to think in terms of how the management system influences human behavior rather than just on the unsafe acts of people. (p. 26)

H.W. HEINRICH

H.W. Heinrich was one of the first safety pioneers to put safety into the context of scientific management. His research is to be praised, and many of his principles are still taught today. However, applying his research in the 21st century requires that the research be revisited for modern industry.

Thousands of safety professionals have quoted Heinrich’s axioms and the 88:10:2 ratios that propose that 88% of accidents are caused by unsafe acts, 10% by unsafe conditions, and 2% by acts of nature. A thorough study of the theory would indicate how misleading and inaccurate it is because the researchers only considered the most *significant* cause of the accident. When the research was done in the 1920s the unsafe act must have been the most significant accident cause. Since then, somebody saw a chance of pinning all accidents on the employees, and used this research to their advantage. Heinrich’s domino accident sequence was taught until the late 1960s, when Frank E. Bird, Jr. and George Germain produced the updated Bird accident sequence.

FRANK E. BIRD, JR.

The Bird accident sequence revolutionized Heinrich’s thinking in that Bird suggested the first domino, or initiating event, in the accidental loss causation sequence, was poor management control. This poor control, according to Bird, then triggered basic causes in the form of personal and job factors. These basic causes led to the unsafe acts or unsafe conditions. These immediate causes, as the acts and conditions are known, led to the contact with the source of energy and the resultant loss. Bird also included all aspects of accidental loss and not only personal injury.

BIRD VS. HEINRICH

Even 40 years after being published, the Bird domino sequence still seems to take a rear seat to Heinrich's original works, first published in 1929. Bird, a professional safety practitioner with more than 40 years of experience, conducted the most extensive safety research ever done to compile his loss causation domino sequence. Yet his cause and effect of accidents is not used as widely as Heinrich's. In fact, many programs all over the world still teach Heinrich in preference to Bird!

Heinrich is quoted in preference to Bird because Heinrich's principle suits organizations better. Heinrich, incorrectly quoted, or simplified, states that people are responsible for their own safety, and that unsafe acts of people cause the majority of accidents, and these acts are caused by their "ancestral background," and the "faults of persons."

Bird, to the contrary, states, "An accident is caused by poor management control." He goes further and says that safety is *management control* of accidental loss. These sophisticated, well-researched statements are, nevertheless, still preempted by the Heinrich philosophy, as it is easier to buy in to Heinrich's placement of blame than to accept the fact that management has responsibility for safety.

CONCLUSION

Revising a safety culture creates a workplace where workers are less inclined to make mistakes, as the risks are reduced and the focus is broadened to one that concentrates on the whole organization, all employees and managers, and which looks beyond the faults of workers and spreads the safety responsibility load across all levels of the organization.

4 Accident Causation Theories

ACCIDENT SEQUENCE

At this stage we examine the loss causation model, or accident sequence, and show the sequence of events that lead to an accident and subsequent loss. The sequence of events that lead to a near-miss incident are identical to those of an accident except no loss is experienced.

Accidents are caused by a sequence of events, a combination of circumstances and activities similar to the snowball or domino effect. These events eventually culminate in a loss. The loss, caused by contact with a source of energy, may be an injury, damage, or business interruption. Due to some unexplained circumstance, sometimes called fortuity or luck, if the event does not end in loss, it is usually termed a near-miss incident. The factors leading up to an accident are there, but the event is interrupted, as there is no exchange of energy, or no contact with the energy, and therefore no injury, property damage, or loss is experienced.

FAILURE TO ASSESS THE RISK

The first factor in the loss causation sequence is the failure to assess and mitigate the risk. Risk assessment is a method that is predictive and can indicate potential for loss. With this knowledge, an organization is able to set up the necessary management controls to prevent these risks resulting in losses, such as injuries, property damage, business interruptions, and environmental pollution.

DEFINITION

The process of risk assessment can be defined as *the evaluation and quantification of the likelihood of undesired events and the likelihood of injury and damage that could be caused by the risks*. It also involves an estimation of the results resulting from undesired events.

RISK MATRIX

A simple risk matrix enables the user to obtain a fairly accurate estimate of the outcomes of a particular event and warns of the degree of possible loss and also the probability of the loss event recurring. High potential events such as near-miss incidents that do not result in loss should be investigated as rigorously as serious injury-producing accidents, if the assessment of the risk shows in the black (high-high) on the

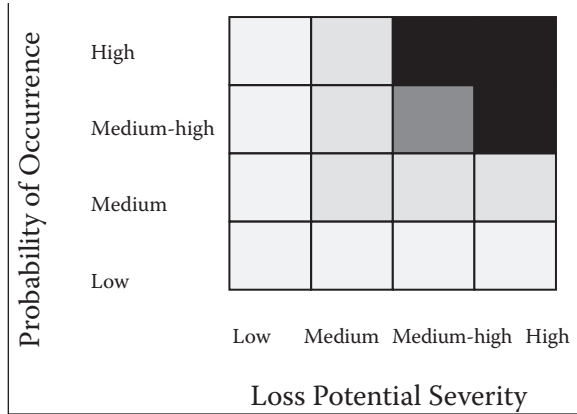


FIGURE 4.1 A simple risk matrix. (From McKinnon, Ron C. 2000. *The Cause, Effect, and Control of Accidental Loss, with Accident Investigation Kit (CECAL)*. Boca Raton: Taylor & Francis. With permission.)

matrix (Figure 4.1). Risks that rank in the grey area (high, medium-high) or (medium-high, medium-high) should also be subject to an investigation. All injuries and loss producing events (in excess of \$1,000) should be investigated irrespectively.

Many safety systems focus on the consequence of loss and not the control. This is a reactive safety culture. Effective risk assessment is proactive, predictive safety in the finest form. In risk assessment the key is, “It’s not what happened, but what could have happened.”

LACK OF CONTROL

The second link in the accident sequence is lack of control. This lack of safety management control could be a weak safety system in place, no safety system standards, noncompliance to the standards, or a total lack of a structured safety management system (SMS). This is often indicated by a negative or nonexistent safety culture. This triggers off the basic causes of accidents. If no formal SMS is in place, this would be classified as an inadequate control system.

BASIC CAUSES OR ROOT CAUSES

The basic (root) causes of accidents are categorized as *personal* and *job factors*. They are the underlying reasons that high-risk acts are committed and why high-risk conditions exist. A personal factor could be a lack of skill, physical or mental incapability to carry out the work, poor attitude, or lack of motivation. Job factors could include inadequate purchasing, poor maintenance, incorrect tools, or inadequate equipment. Both of these symptoms are a direct result of the prevailing safety culture. It could be a culture that accepts substandard workplace conditions and condones high-risk work practices. These basic causes then trigger the immediate

causes, which are unsafe work conditions and unsafe work practices (high-risk conditions and high-risk acts).

IMMEDIATE CAUSES

The immediate causes of accidents are circumstances that immediately precede the contact with the source and flow of energy. They usually can be seen or sensed. Frequently they are called *unsafe acts* (behaviors that could permit the occurrence of an accident) and *unsafe conditions* (circumstances that could permit the occurrence of an accident). Modern managers tend to think a bit more broadly, and more professionally, in terms of *high-risk practices* and *high-risk conditions*, which are defined as *deviations from an accepted standard or practice*.

HIGH-RISK CONDITIONS

High-risk conditions are physical work conditions throughout the workplace that are below accepted standards. This results in a high-risk situation or an unsafe work environment. High-risk work conditions include:

- Disorder
- Unguarded machines
- Poor ventilation
- Cluttered walkways
- Poor housekeeping
- Inadequate lighting
- Unsafe stacking of goods and items

HIGH-RISK ACTS

High-risk acts are the actions of people that put them, and possibly others, at risk (at-risk behaviors). This means that people are behaving contrary to the accepted safe practice, and thus creating a hazardous situation that could result in a loss. High-risk acts include:

- Working at an unsafe speed
- Failure to warn somebody
- Not following procedures
- Rendering safety devices inoperative
- Clowning and fooling around in the workplace
- Working without authority

Accidents and near-miss incidents are always a result of multiple causes, normally a combination of high-risk conditions and practices, and seldom, if ever, is an accident or a near-miss incident attributable to a single cause. Proactive safety cultures endeavor to determine all the contributing causes of an accident and do not dwell on the behavior only. This practice is termed *looking beyond the injured*.

Natural factors account for a small percentage of accidents. Tornadoes, thunderstorms, volcano eruptions, earthquakes, and floods are examples of natural or environmental factors that can lead to major losses. These can be attributed to neither high-risk behavior nor an unsafe work environment.

CONTACT AND EXCHANGE OF ENERGY

The high-risk conditions or acts normally give rise to an exchange of energy and a contact which is the stage in the accident sequence where a person's body or a piece of equipment is subject to an external force greater than it can withstand, resulting in injury or damage, or both.

A luck factor exists here because the high-risk act or condition may only result in a near-miss incident with no loss—a close call. There is no contact with the energy, no energy exchange, or the energy is insufficient to cause harm.

NEAR-MISS INCIDENT EXAMPLE

Two employees working at an ore crushing mill were removing the heavy steel liners from the inside of the mill, which stand about 2 stories high. The common practice was to rotate the mill until the linings were at the bottom, and once they were accessible at the bottom of the mill, the retaining bolts were removed. Each lining weighed about 120 lbs. (260 kg). To free the linings the mill was then rotated and gravity forced the linings to fall to the bottom of the mill where they could be easily removed. On this occasion a 3-foot-long pry-bar was left in the bottom of the mill as it was rotated, and the lining fell to the bottom of the mill and struck the pry-bar, causing it to shoot out of the mill like a missile. The flying bar missed the foreman by a few inches, and he said he felt the wind on his cheek as it passed. No injury or damage was recorded.

This near-miss incident explains the flow of energy that was the flying pry-bar. It missed the foreman, indicating that although there was a source of energy, there was no contact (with the foreman) and no exchange of energy, as there would have been if it had hit the person. The reason it missed the foreman could be attributed to luck or good fortune.

INJURY, DAMAGE, OR LOSS

After the contact and exchange of energy, luck again plays a role in determining the outcome of the contact. The outcome could be injury to people, damage to property, harm to the environment, process interruption, or a combination of these. We have no control over the outcome of the contact. Once the process is in motion, no control activity can determine the outcome, which could be minor injury, serious injury, negligible or severe damage to property, or even death.

INJURY

If the contact results in an injury, we are again dependent on luck. The injury may be minor, disabling, or fatal. The outcome of the exchange of energy and subsequent injury is fortuitous and depends on luck. The end result of a contact cannot be predicted or controlled. Contact safety controls (at the time of the energy exchange), such as personal protective equipment, safety belts, and vehicle air bags, contribute to help reduce the severity of injuries, which are hard to predict.

PROPERTY DAMAGE

One of the three major outcomes of a contact is property damage. Accidental property damage is damage caused by an accident. Many safety systems do not call for reporting or investigation of these damage accidents, which in most cases also have potential to cause injury to employees under different circumstances. The damage is usually a result of a contact and exchange of energy greater than the resistance of the object. Property damage can include damage to buildings, floors, equipment, machinery, and material.

Accident Ratios

In regard to accident ratios, property damage accidents occur more often than any other type of accident. Property damage accidents are therefore opportunities to identify the basic causes and take steps to eliminate similar accidents. It will be appreciated that should a similar accident occur, because of hazards that have not been rectified, the outcome may be different. The next time the accident may result in injury, damage, business interruption, or a combination of these.

Research has shown that every serious injury experienced as a result of an accident has been preceded by some minor injuries, many more property damage accidents, and there had been plenty of warnings in the form of near-miss incidents (close calls).

Property damage accidents are the most important in the accident ratio (Figure 4.2). They are also warnings that a failure exists in the management system. This creates



FIGURE 4.2 The updated accident ratio. (From McKinnon, Ron C. 2012. *Safety Management, Near Miss Identification, Recognition and Investigation*. Boca Raton: Taylor & Francis. With permission.)

root causes, which in turn give rise to immediate causes and the contact, which then causes a loss in the form of damage to equipment, machinery, etc.

Property damage accidents in a plant are often a result of motorized vehicles colliding with a building, cladding, raw product, or finished goods. Most manufacturing concerns are intent on the product output of the plant and the cost of final product being damaged by accidents.

Most property damage accidents have the potential to injure people and therefore should not be ignored. Significant property damage accidents should be reported and investigated. They should receive the same attention as an accident that causes serious injury. All significant property damage accidents should be thoroughly investigated and a costing done to indicate the actual losses incurred. Costs of repairs to equipment and vehicles should also be listed and tabled at safety committee meetings. These statistics form a vital part of loss statistics.

FIRE

Fires are devastating. Every year, millions of dollars' worth of property and products are destroyed. Fires are undesired events, and occur as a result of high-risk acts, high-risk conditions, or a combination thereof. Property damage caused by fires is overwhelming. Sometimes the fire causes no injuries, in which case the only consequence is extensive damage to property, machinery, and products. The environment can also be damaged as a result of fire or pollution resulting from the fire. Extensive losses can occur even if no injuries take place.

BUSINESS INTERRUPTION

Most property damage accidents result in business interruption and financial loss. A contact need not necessarily cause injury or damage to cause some form of interruption of the business. The interruption may either be major or minor, depending on the severity of the contact. Invariably a contact causes some form of loss. If substantial time is lost restarting a machine or rectifying a continuous process that has been interrupted as a result of an accidental contact, it is a loss.

The losses caused by business interruption may not be as severe as losses incurred by injuries or property and equipment damage accidents. The exchange of energy in a business interruption is sometimes not as severe, but is sufficient to disrupt the work.

The work output would be affected because of the delay. Extra effort is needed to rectify this delay. Time to clean up, readjust, and realign is a loss as a result of the business disruption. In certain instances a critical part may be affected by the contact and, if not damaged, may be malfunctioning or temporarily displaced. All business work, process, and flow interruptions cost money.

Loss

Each accident results in some form of loss, and all losses cost money. Time may be lost, forms need to be filled out, and the business is interrupted to a degree. Many of the costs of an accident are hidden and therefore go unnoticed. Direct costs or

insured costs are normally the only costs associated with an accident and are the lesser of the two amounts.

Costs

The final phase of the accident sequence and the last link in the chain reaction are costs. All contacts and exchange of energy result in some form of loss. Losses could include both direct and indirect costs of the accident. In mining and industry, property damage costs could be up to 50 times greater than the direct costs of accidents. A third is the hidden costs, which are seldom identified or tallied. The hidden costs of the accident are also losses that are hard to determine, but which exist nevertheless.

Part of the management control function is costing out the accidental losses and showing these as part of the losses of the business. Management consultants have stated that maximizing profits is not the only aspect of business; minimizing losses is just as important.

A MEASURE OF SAFETY

Because an injury is minor, this does not mean that the event that caused the injury was minor. The event should be investigated and the potential and probability of recurrence evaluated. The next similar event may have more serious consequences as a result of luck factors (under slightly different circumstances).

Most safety systems count the serious injuries as a measure of safety. This measurement method, while still accepted, is in fact a measurement of failure. Assessing and controlling the risks of the business and the activities that make up the control measures should be audited, and the result will be a more comprehensive measurement of safety because *the management work being done to combat loss is measured*.

CONCLUSION

A positive, proactive safety culture recognizes the fact that accidents and other downgrading events are caused by a sequence of events that can be interrupted and the accident prevented. Risk assessment will help predict potential loss events. This requires a culture wherein high-risk workplace conditions are not tolerated and high-risk behaviors are not condoned or accepted. This, after all, should be the object of a positive safety culture—safe working conditions and safe work behaviors.

5 Safety Culture Change Management Functions

INTRODUCTION

Poor management control or lack of management control is what invariably leads to accidents, which in turn cause loss. The key to a positive safety culture, a weak safety culture, or a change in safety culture is management's commitment, involvement, and leadership of the safety drive.

SURVEY

I conducted a survey among some 50 members of line management who were in the process of implementing a world's best-practice safety management system at an organization and were experiencing the accompanying change in safety culture.

The first question posed was, "What things contribute most to a positive safety culture?" The results were as follows.

The most important factors were listed as:

- Participation
- Holding employees accountable for actions
- Working together
- Employee buy-in and cooperation
- The whole team applies it
- Employee awareness
- Time set aside by management
- Attitude
- Safety department being teachers, not cops
- Training
- Leadership
- Strict enforcement
- Positive reinforcement from management
- Management involvement
- Management commitment
- Management buy-in

The second most important factors were listed as:

- Teamwork
- Management supporting supervisors

- Compliance by example
- Management to be team players
- Good housekeeping
- Feedback on tasks done
- Management endorsement
- Management backing
- Employee morale
- Safety recognition
- Occupational Safety and Health Administration (OSHA) fines
- Good progressive discipline
- Near-miss incident reporting
- Awards for housekeeping and safety
- Accountability at all levels
- Attitude

The third most important factors were listed as:

- Motivation
- Management interaction with field employees
- Recognition of employees
- Learning more
- Incentives for doing a good job
- Training given by the safety department
- A working safety committee
- Job hazard analysis
- Positive reinforcement
- Understanding of safety responsibility
- Positive attitude
- Proper training

All respondents agreed that safety culture starts with senior management but also involves line management and employees. They agreed that a clean and neat workplace improved safety, and that a structured safety management system did improve the safety culture. When asked if good housekeeping was a reflection on a positive safety culture, they all replied yes. In answering the final question about recognition, all agreed that recognition does help improve general safety awareness (McKinnon, 2012).

MANAGEMENT LEADERSHIP

The safety and health of employees at the workplace is the ultimate responsibility of the management of the organization. Even though it is generally accepted that all share a role in safety, the ultimate accountability lies with all levels of the leadership. With this in mind, the implementation of a safety management system with the intent of changing the safety culture can only be successful if initiated, led, and supported by all management.

A common factor in all accredited safety management systems (SMS) is an element that calls for management leadership and commitment to the safety and health process. It is almost guaranteed that any attempt to change or improve the safety culture at any workplace will fail if there is not total commitment, leadership, and management involvement from the executive right down to and including frontline supervision.

Keller (2012) states:

In the research for our book, *Beyond Performance*, we found that the reason for this is that most executives don't see themselves as "part of the problem." Therefore, deep down, they do not believe that it is they who need to change, even though in principle they agree that leaders must model the desired changes.

WHAT IS A MANAGER?

A manager is anyone who uses management skills or holds the organizational title of manager, and who gets things done through the efforts of other people. Management can also refer to the person or people who perform the act(s) of management.

BASIC SAFETY MANAGEMENT FUNCTIONS

It is generally accepted that a manager's main safety functions are:

- Safety planning
- Organizing for safety
- Leading or directing the safety movement
- Safety controlling

All these functions entail the management of employees, materials, machinery, the environment, and processes. These four basic functions of safety management, if integrated into a manager's normal functions, could provide for better management, leadership, and involvement in the safety program and its elements. A positive safety culture can only be obtained by positive proactive leadership.

SAFETY PLANNING

Safety planning is what a manager does to predetermine the consequences of accidents and to determine action to be taken to prevent these downgrading events occurring. This may involve the implementation of a risk-based safety management system to reduce risks on an ongoing basis. It may entail formulating an action plan to change or improve existing safety culture.

THE FUNCTIONS OF SAFETY PLANNING

Safety Forecasting

Safety forecasting is the activity a manager carries out to estimate the probability, frequency, and severity of accidents that may occur in a future time span. Safety forecasting is risk assessment. This is usually done by means of physical risk assessment, critical task identification, and task risk assessment. It also entails estimating the effects of risk reduction brought about by a stable safety management system. Hazard and operability studies are part of this function.

Setting Safety Policies

Setting safety policies consists of a manager developing standing safety decisions applicable to repetitive problems that may affect the safety of the organization. Policies or standards are the backbone of a structured safety system. These standards must be developed and approved by the executive team with involvement from unions and employees and would form the organization's SMS.

The Safety and Health Policy

The leading document in the safety system is the official safety and health policy issued by the executive management. This policy forms the commitment to implement a structured safety management system, which in turn will bring about a change in the safety culture. The policy should be prominently displayed in the office foyer, on the company website, in the employees' safety handbook, and on safety notice boards.

Setting Safety Objectives

Setting safety objectives is when a manager determines what safety results he or she desires. This includes incorporating a formal safety system with a view to changing the existing safety culture. The structured safety system should contain a number of written objectives defined in the system standards. One objective for the organization could be to hold an executive safety committee meeting each month. Another could be the number of plant inspections to be done by each manager. The safety system should require a number of objectives to be set and met on a daily, weekly, and monthly basis.

Establishing Safety Procedures

Establishing correct safety procedures is when a manager analyzes certain tasks and writes safe work procedures for performing the work. Based on risk assessments, the tasks can be risk-ranked and the critical tasks identified. This will help prioritize the writing of procedures. Specific inspection procedures, equipment maintenance procedures, internal audit procedures, and other procedures are vital components of the system.

Safety Programming

Safety programming is establishing the priority and following order of the safety action steps that must be taken to reach the safety objective. If the objective is to

bring about a change in safety culture, the necessary actions, activities, and steps needed to achieve this objective should be laid out and timelines established.

Safety Scheduling

Safety scheduling is when a manager establishes time frames for the safety system steps. In introducing and maintaining a safety management system, a schedule should be determined for the introduction phase of the system, the training phase, as well as the follow-up and review of the results, successes, and failures of the system.

Safety Budgeting

Safety budgeting is allocating financial and other resources necessary to achieve the safety objectives. A budget allocation may be required for the incentive scheme. There may be training costs relating to the implementation of a safety system. Mechanical or structural repairs or modifications may be needed to eliminate hazards reported through the safety system, and these expenses must also be budgeted for.

ORGANIZING FOR SAFETY

Safety organizing is the function a manager carries out to arrange safety activities to be done most effectively by the right people. This involves allocating persons to coordinate the SMS, to carry out inspections, audits, and reviews, and produce the necessary reports for management. Appointment of safety and health representatives, accident investigators, and other persons with specific safety tasks are part of organizing for safety. The structure, manning, development, and functions of the safety department fall under this management function.

INTEGRATING SAFETY INTO THE ORGANIZATION

Integrating safety into the organization is the work a manager carries out to allocate safety work to all levels of employees. The more the SMS is integrated into the organization, the better the safety culture becomes. Only once the safety activities of an organization are blended into the day-to-day operations of the organization and not perceived as separate functions can safety culture change take place. Once complete integration is achieved, a positive, proactive safety culture will exist.

SAFETY DELEGATION

Safety delegation is what a manager does to entrust safety responsibility and give safety authority to his subordinates, while at the same time creating accountability for safety achievements.

CREATING SAFETY RELATIONSHIPS

Creating safety relationships is work done by a manager to ensure that safety work is carried out by the team with utmost cooperation and interaction among team members. The ongoing safety system requires participation, support, and action from all

levels within the organization and cannot be left as one person's, one department's, or one manager's responsibility.

SAFETY RESPONSIBILITY

Safety responsibility is the safety function obligation allocated to a position in relation to the authority of the post, and it determines the level of safety accountability of that post. It is the duty and function demanded by the position within the organization. This lies with all levels of management as well as with employees. The higher the management position, the higher the degree of safety responsibility. One cannot be held accountable for something over which one has no authority. The degree of safety accountability is also apportioned to the degree of safety authority. Job descriptions are vital management tools and should clearly define the safety authority, responsibility, and accountability of each job and each level within the organization.

SAFETY AUTHORITY

Safety authority is the total influence, rights, and ability of the position to command and demand safety actions. Management has ultimate safety authority, and therefore is the only echelon that can effectively initiate, implement, and maintain an effective SMS and create safety culture changes. Leadership has the authority to implement and maintain safety, and also the authority to take necessary remedial measures if there are deviations from accepted safety practices and norms.

SAFETY ACCOUNTABILITY

Safety accountability is when a manager is under obligation to ensure that safety responsibility and authority is used to achieve both safety and legal safety standards. Employees too have safety accountabilities in proportion to their safety authority.

Leadership is accountable to manage an SMS and to provide the necessary infrastructure, environment, and training to enable the system to work. Employees should be held accountable for participating in the system and for following the prescribed standards of the system.

Management at all levels is then held accountable to rectify the problems identified by the safety system and to ensure that the high-risk acts or conditions highlighted by the system are rectified before a loss event occurs.

SAFETY LEADING

Safety leading is what a manager does to ensure that people act and work in a safe manner. It entails taking the lead in safety matters, motivating, making safety decisions, and always setting the safety example. This is one of the most important management functions in implementing and maintaining a safety system, and more so when changing the workplace safety culture. This is where change begins.

The principle of leadership example states that people tend to emulate their leaders. Most employees want to please their immediate supervisors, and do so by following their behavioral example. This could be a positive safety example or a negative example. The attitudes and actions of managers at all levels are among the greatest motivational forces in safety management. Condoning any high-risk situation sends a message that it is acceptable practice, and employees follow the example and continue with the practice, thinking it must be all right, as managers have condoned it.

THE FUNCTIONS OF SAFETY DIRECTING (LEADING)

Making Safety Decisions

Making safety management decisions is when a manager makes a decision based on safety facts presented to him or her. During the process of safety culture change there will be a multiplicity of decisions that need to be made.

Safety Communicating

Safety communicating is what a manager does to give and get understanding on safety matters. This is one of the key components to safety culture change and the maintenance of a positive safety culture. This function entails the creation of various safety communication channels from the workplace to management and from management to the workplace. Regular feedback to the workforce on safety matters helps foster safety communication, and reporting by employees informs management about conditions on the shop floor.

Positive Behavior Reinforcement

Positive behavior reinforcement is one of the vital ingredients to safety success, especially to safety culture change interventions. Of all the efforts and functions carried out by leadership, positive behavior reinforcement is likely to have the greatest effect on the success of the safety system and consequent culture change.

A safety system is centered around managers and employees. They are the key players, and as such they need to be recognized, especially when they do things right. Safety people have a history of catching people doing things wrong and issuing punishment accordingly. This has not helped progress safety at all. Recognition of employees for adhering to safety rules and for participating in the safety processes reinforces their involvement and encourages them to continue doing the correct things.

Motivating for Safety

Motivating for safety is the function a manager performs to lead, encourage, and enthruse employees to take action for safety. Traditionally, incentives, in many instances hard cash, have been given as safety incentives, but were given mostly for being “injury-free,” which has nothing to do with working safely. The power of these injury-based incentives is that employees are prepared to hide their injuries and not report them for fear of losing their “safety bonus.” This is one of the practices that

has created a safety culture of fear, intimidation, and dishonesty and which pays employees to cheat the system rather than participate in it.

Incentives should never be in the form of cash and should never be linked in any way to injuries; they should be small tokens of appreciation (sometimes even a simple handshake) that are given to employees who participate in positive safety actions. Examples are:

- Maintaining the housekeeping standard in their area
- Frequent reporting of near-miss incidents
- Submitting safety suggestions
- Wearing personal protective equipment
- Attending safety committee meetings

Acknowledging employees is vital to the success of the system. The power of a small gesture of thanks and recognition cannot be overstated in its importance in bringing about safety culture change.

Appointing Employees

Hiring and appointing employees is a function in which management ensures that someone is both mentally and physically capable of safely carrying out the work for a position. Hiring the correct person for the task is a prime consideration for the prevention of accidents. The success of coordinating the safety system will indirectly depend on the support it receives from the safety department, and this depends on the quality of safety and health staff initially appointed.

Developing Employees

A manager develops people by helping them improve their safety knowledge, skills, and attitudes. Management has to ensure that the safety and health staff is up to date with the latest trends in safety and risk management, and that there is an ongoing self-development program in place for them. Further studies, as well as membership in local, regional, and national safety and health associations, should also be encouraged.

GETMAC

The function of all safety departments and personnel should be to *guide, educate, train,* and *motivate* all levels of management, workers, and unions in the techniques of accident and disease prevention, and to *advise* and *coordinate* the safety system (GETMAC). This should be a staff function and not a line function (see Figure 5.1). All employees have some safety responsibility, but management, senior and line, has ultimate safety authority, and therefore is ultimately accountable. The safety department cannot, and should not, be held accountable for the safety performance of an organization. This has been stated by a number of safety authors, yet safety departments traditionally drift back to managing the safety of others.

When appointing safety and health department employees, management has a duty to the safety profession to ensure that suitably qualified and experienced practitioners are selected. Proper job descriptions based on the American National Standards Institute (ANSI) guidelines—ANSI/ASSE Z590.2–2003: *Criteria for*

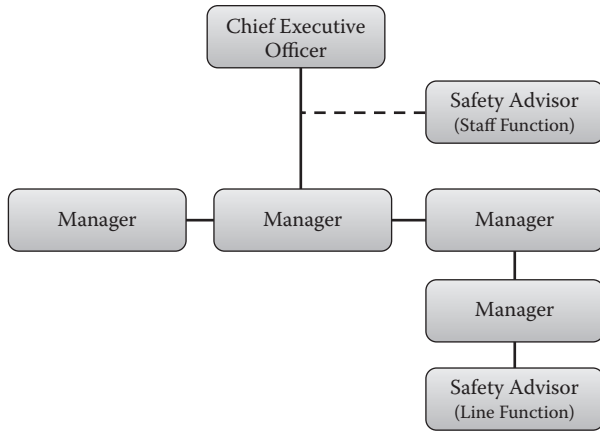


FIGURE 5.1 The safety professional in a staff function.

Establishing the Scope and Functions of the Professional Safety Positions—should be used as selection and training criteria for safety staff.

Safety departments should be professional. Their responsibility is to advise management and coordinate the activities of an ongoing safety management system. They cannot improve the safety by accepting responsibility for safety. They should not directly try to influence behaviors of employees. Only management can do that. Traditional safety is a thing of the past. New approaches are needed by safety staff if they are to assist in the safety culture change process.

SAFETY CONTROLLING

Safety controlling is the management function of identifying what must be done for safety, inspecting to verify completion of work, evaluating, and following up with safety action. This is the most important safety management function and is how safety culture is formed, modified, or changed.

The safety controlling function has seven steps.

STEP 1. IDENTIFICATION OF THE RISK AND SAFETY WORK TO BE DONE TO CHANGE A SAFETY CULTURE

Based on risk assessments, a manager lists and schedules the work needed to be done to create a safe and healthy work environment and to eliminate high-risk acts of people. If the need is to change the safety culture at the workplace, this would mean the introduction of a suitable structured SMS based on world’s best practice. All SMS should be based on the nature of the business and be risk based, management led, and audit driven.

A Safety Management System (SMS)

A safety management system is defined as *ongoing activities and efforts directed to control accidental losses by monitoring critical safety elements on an ongoing basis*. The monitoring includes the promotion, improvement, and auditing of the critical elements regularly.

ANSI

A good guideline for what elements a safety management system should contain is the American National Standards Institute (ANSI), ANSI/AIHA Z10–2005 American National Standard: *Occupational Health and Safety Management Systems*. A similar standard exists for the construction and demolition industry: ANSI/ASSE A10.38–2000 (R2007): *Basic Elements of an Employer's Program to Provide a Safe and Healthful Work Environment*.

BSI

Other international guidelines and safety accreditation systems include the British Standards Institute (BSI), *Occupational Health and Safety Management Systems* (OHSAS 18001).

What Are Critical Elements?

Critical safety elements are elements including environmental and employee factors that need to be controlled constantly to prevent accidental losses from occurring. The safety management system should contain some 70 key areas that need to be controlled. They include items such as safety training, safe work procedures, management involvement, energy and chemical control systems, and housekeeping. These are critical safety system elements.

Critical safety elements are those elements most likely to give rise to losses. Past experience based on thousands of safety inspections and audits has shown that control over certain aspects of the workplace and work practices can significantly reduce accidental losses. Many of these critical elements are requirements of safety and health legislation.

Controlling critical safety elements is pre-contact control. This is effort directed toward the prevention of undesired events. Once controls over certain critical elements are exercised, proactive safety is practiced. This determines the difference between a proactive and a reactive safety culture.

Why These Elements?

There are usually between 60 and 80 critical safety activities (elements) that must be controlled to constitute an effective safety system. These elements may vary from organization to organization and from industry to industry. The emphasis on individual elements will also vary according to the nature of the process, culture of the workforce, and category of business, such as mining, the iron and steel industry, transportation, the fishing industry, manufacturing, etc.

Principle of the Critical Few

The principle of the critical few states that *a small number of basic causes could give rise to the majority of safety problems*. A few critical tasks could be responsible for the majority of accidents and injuries occurring, and these items (critical safety elements) should receive maximum safety control to minimize their potential for causing (the majority) of problems.

Pre-contact control is directing the safety efforts toward controlling these crucial areas before a loss occurs. Most safety systems are reactive and only institute controls after a loss has occurred. This is termed post-contact control—firefighting, patch prevention, or treating the symptom and not the cause. This is the main course of action in a reactive safety culture.

In implementing safety culture change management one should also focus on those safety activities (elements) that have the potential to bring about the biggest culture change with the least amount of effort.

Benefit

The benefit of controlling critical safety elements is that the work being done to manage safety is channelled toward reducing the risk and potential loss in areas that have been identified as crucial.

Some critical safety elements help control the physical conditions and the health and safety of the environment that would contribute to the reduction of losses as a result of an unsafe workplace. The act of cleaning up a workplace helps to clean up the thought processes of those in the workplace. The physical conditions of the workplace have a major effect on the attitudes and behaviors of employees. Positive safety culture cannot be nurtured in a dirty, disorderly work area.

Many psychologists refer to “behavior modification” of employees in a workplace as the key to safety, and indeed, safety culture success. This does not take into account the fact that if you put an employee into a work area that is poorly lit, disorderly, and untidy, his or her behavior will be a reflection of those conditions, whereas if you put a person into an area that has immaculate housekeeping, neat stacking and storage, is well lit, and provides a place for everything and everything is in its place, his or her behavior will also be positive and in order. That’s where changing the safety culture begins!

Other critical safety elements are directed toward the control of the persons within a workplace. These controls include items such as critical task procedures, rules, training, and activities to involve, motivate, guide, and train employees in safe work practices.

Numerous safety elements help control both the behavior of people at work and the work environment and procedures. No hard-and-fast dividing line can be drawn between elements defining them as either behavior or environmental control. One influences the other. All elements are mini safety culture change interventions and demand certain actions and performances that eventually create behavior and conditions that equate to an ongoing safety culture.

Elements to control the environment include housekeeping, lighting, electrical safety, stacking and storage, ventilation, lifting gear safety, demarcation, machine

guarding, hazardous substance control, etc. These set an environment that is conducive to positive behaviors and attitudes and eventual safety culture.

Elements to control behaviors and ensure safe work procedures include critical task procedures, rules and regulations, appointment of health and safety representatives, holding of regular meetings, safety communication, safety promotion campaigns, medical examinations, etc.

STEP 2. SET STANDARDS OF PERFORMANCE MEASUREMENT

Standards in safety are referred to as measurable management performances. Standards are set for the level of work to be done to maintain a safe and healthy environment free from actual and potential accidental loss. Standards are established in writing for all the safety and health management system elements. Without standards the management program has no direction or safety expectations established. (If you don't know where you're going, any road will take you there.)

STEP 3. SET STANDARDS OF ACCOUNTABILITY

Management now sets standards of accountability by delegating authority to certain positions for ongoing safety work to be done. Coordination and management of the safety management system needs to be allocated to certain departments and individuals, and this standard dictates who must do what, and by when, to run the system.

STEP 4. MEASURE AGAINST THE STANDARD

By carrying out safety inspections the condition of the workplace and the ongoing activities of employees are now measured against the accepted safety standards. Physical inspection of the workplace will highlight instances of property damage accidents and will trigger a follow-up on the control systems to ascertain if there has been a report and consequent investigation.

Unfortunately, most measures presently used in the safety field require loss-type accidents to occur with a certain degree of severity before identification of accident problems is possible. (Tarrants, 1980, p. 319)

What gets measured gets done, and if there is no formal system of measurement, then management does not know how well the system is doing compared to its own standards and best practice. Conformance to standards set by management is a good indicator of a positive safety culture. For example: Are employees doing monthly area inspections? Are critical task procedures being followed?

Measurement involves comparison with standards and without adequate standards; there can be no meaningful measurement, evaluation or correction of performances. (Bird and Germain, 1992, p. 49)

STEP 5. EVALUATION OF CONFORMANCE

Depending on which measurement method is used, the results are now quantified in the form of a percentage allocated, marks given, or a ranking established. Safety audits, both internal and external, evaluate compliance with an organization's standards, and scores then indicate whether there is a deviation from the prescribed standards set.

STEP 6. CORRECTIVE ACTION

The amount of corrective action will be proportional to the amount of deviation from standards set. Corrective action may involve enforcing the safety standards and taking the necessary action to regulate and improve the methods.

Once again, standards are established for these corrective actions, and they state who must do what by when, in order to get the situation rectified. Corrective action must be positive, time related, and assigned to responsible people.

Corrective actions could include better communication of goals, objectives, and standards to ensure they are understood. More effective training may be required, coupled with more feedback on safety performances, so employees know where they stand. Procedures and processes may have to be modified or improved.

STEP 7. COMMENDATION

Commendation is when a manager pays compliment and expresses gratitude for adherence to an achievement of preset safety standards. Reporting and rectification of deviations from standard will become a natural thing for employees to do, and when that happens, it indicates there has been a change in the safety culture. Improved recognition for desired behaviors should be introduced. The awarding of a traveling trophy for good housekeeping, for example, creates a lot of enthusiasm and excitement. Since people are competitive by nature, introducing competition in safety will help put some excitement into the safety culture shift process. In the case study in Chapter 17, mention is made of the safety representatives' jacket that was awarded to employees who attended the 40 hours of safety training. This created a lot of excitement toward the safety drive. Annual safety award presentations where certificates are awarded should be a part of the culture change process and can do more good than many other initiatives. Safety culture change should entail moving away from a culture of catching someone doing something wrong to one of catching someone doing something right and recognizing them for it.

6 Safety Culture Change Management Principles

INTRODUCTION

The safety aspects of management are a vital part of creating safety culture change, and the safety management system (SMS) is the vehicle for the change. Safety management can be summarized as follows:

- Safety management has a specific vocabulary when related to safety culture change.
- Safety management has certain principles and fundamental truths that are derived from professional management and which are applicable to safety management.
- The pre-contact, contact, and post-contact safety management control actions can be measured.
- Safety management can clearly be identified and classified.

SAFETY MANAGEMENT PRINCIPLES

The management profession has many principles that have developed over the years that are applicable to safety management. When implementing a structured safety system with the intent to create change in the existing culture, the application and practicing of these principles can assist in ensuring system implementation and change success.

The following principles indicate the importance of management's role in safety culture change. The implementation of an SMS must have the full support of the executive management and must be driven by management at all levels. Management must also set the example, and as leaders, participate in the safety management system.

SITE VISITS AND VISIBILITY

Managers should visit the workplace as often as they can and interact with employees at the point where the work is done. This is also where the risks lie, and these visits and contacts with employees will help reinforce managements' visible commitment to the safety system. All managers should be visibly committed to the safety drive, and this will involve their frequent visits to the shop floor to mingle with the workers and manage the safety at the point of action. Site visits will also indicate to the managers the status of the safety culture change efforts. The closer to the point of action, the more effective the management effort will be.

SAFETY CULTURE CHANGE SUCCESS

The degree of integration of safety principles and standards, and employee involvement in the system, is directly proportional to the amount of management leadership and commitment. The more encouragement and support management gives employees, the more positive their attitude will become and the more they will partake in the safety system.

The chief executive officer (CEO) of any firm is the leader, and if he leads for safety, others will follow. Top management must always set an example for others to follow. Setting an example for safety is of crucial importance in the safety system. Management must set the standards, take the lead, and be prime examples of safety. Safety cultures start with the lead and direction given by executive management.

John R. Childress (2009) refers to “leadership shadows” and says,

And the most difficult reason of all (because it’s difficult for senior executives to accept) is that in most cases the corporate culture is a direct reflection of the senior team, a phenomenon called “Shadow of the Leader” (Senn and Childress, 1999). In other words, employees take their clues on how to behave and how to get ahead by watching the collective and individual behavior of the senior executives. And in most cases the behavior of the senior team is invisible to themselves—they don’t see the shadows they are casting! (p. 3)

Change cannot and does not begin with the employees. Employee behaviors are a reflection of the workplace and the safety ethos of the workplace that they work in. Their behaviors are a direct reflection of the state of the workplace, and the state of the workplace is determined by the leadership and the standards it sets.

TOTAL COMMITMENT

Involvement in the safety program by the CEO and other members of management is not sufficient. Total commitment to the safety and health movement is required. Most levels of management are involved in safety on a day-to-day basis. This involvement does not necessarily mean they are contributing enough. Total commitment is required of all levels of management, especially the executive management level. Participation at safety functions, during safety inspections, and in ongoing safety control activities is important. Setting the tone by participation is vital to safety culture change.

A chief executive and his fellow managers can either give minimum commitment to the safety movement or maximum commitment and support. A successful change of safety culture needs both initial and ongoing management support as well as buy-in from the unions and employees. Line management must take the lead and be active participants.

The initiative to launch and maintain safety momentum is required from top management, and so is the leadership and ongoing support necessary to prevent downgrading accidents that lead to losses.

EXECUTIVES SET OBJECTIVES

People normally pay most interest to what the CEO wants them to pay interest to. If this happens to be safety, safety will get their attention. Executive leadership, commitment, and a desire to improve the work standards and reduce high-risk behavior and high-risk conditions lead to better safety, production, and higher quality standards. Only executives can set safety objectives that can be cascaded down to lower levels within the organization, and which will eventually bring about a change in the safety culture.

Participating at the safety committee level, steering the activities that lead to the achievement of safety objectives, and maintaining the safety momentum are prime, but often neglected, functions of management.

PRINCIPLE OF SAFETY MANAGEMENT RESULTS

The principle of safety management results is: *A leader tends to secure most effective results through others by performing the management work of safety planning, safety organizing, safety leading, and safety controlling.*

Since the SMS is management driven, these basic safety management principles are vital for the implementation and maintenance of the system, without which safety culture change would be almost impossible.

PRINCIPLE OF THE KEY SAFETY ADVOCATE

This principle states: *It is easier to persuade decision makers when at least one person within their own circle believes in the proposal well enough to champion the cause.*

The positive persuasive power of such a champion may make the difference between rejection and acceptance of the need for change. If this champion happens to be an executive, so much the better for the change process. One strong supporter of change can often persuade the rest of the group to accept decisions and moves for change. However, the principle can work the opposite way, where the key advocate may be someone who is opposed to change.

PRINCIPLE OF SAFETY LEADERSHIP

This principle is: *An effective manager recognizes the benefit of a strong safety culture within an organization and when he leaves, takes it with him and makes it a prime objective at his new organization.*

Good safety follows good managers who have recognized the benefits of a sound safety management system at the workplace. Having seen the benefits of structured safety systems, managers realize that getting the safety right helps in getting other aspects of the business right. Losses are reduced, quality is better, and managers are forced to manage their employees and work areas correctly. Objectives are set and met, and the safety system brings about a strong management system that impacts all other areas of the company. With these benefits come a lower staff turnover rate, a lower absenteeism rate, improved worker morale, and less accidental losses. Safety management teaches the management team how to manage.

In summary, it can be stated that:

- Safety is as important to the successful enterprise as production, quality, and cost control.
- Effective safety management is simply effective management.
- Safety is a fundamental responsibility of line management.
- Safety accomplishments come from applying professional management principles and practices to all functions, including safety.

PRINCIPLE OF SETTING SAFETY OBJECTIVES

The principle of setting safety objectives is: *The speed, efficiency, and motivation to carry out safety work are increased if the work is directed toward preset safety objectives.*

This means that management must know what they want and determine what work is necessary to achieve the implementation of the safety management system. Safety responsibility must be assigned and the work relationship must be clearly defined to achieve the safety objectives. The safety management system must have a set of standards, targets, and timelines. Expectations must be set for the number of employees to be trained and the number of inspections to be carried out, among other activities. Some objectives could be:

- Housekeeping compliance to be 90%
- Lockout, tag-out, total compliance
- Monthly safety committee meetings held
- Number of near-miss incidents reported
- Number of reported hazards corrected
- Planned number of safety and health representatives appointed
- Number of safety talks to be held
- Number of critical task observations to be conducted
- Divisional audit score to be achieved

An objective for the implementation of the safety system should also be set. This could include writing the standards, review of the standards, and setting the time frame for implementation of each standard.

PRINCIPLE OF RESISTANCE TO SAFETY CHANGE

This principle states: *The introduction of safety standards and procedures that differ from the way things were done in the past tends to be met with resistance by the people involved.*

This resistance to change is sometimes referred to as pushback. Introducing safety management is a change that creates an insecure environment. Introduction of safety systems requires adequate preparation, and the best way to introduce a comprehensive safety management system is by introducing it element by element. The smaller the change, the smaller the resistance to the change, but if the change is too big or too fast, there will be pushback from both employees and managers.

The introduction of a structured safety management system will normally be met with resistance and skepticism by the workforce. Changing existing embedded safety habits, rituals, and perceptions will be met with reaction and resistance to change.

PRINCIPLE OF SAFETY COMMUNICATION

This principle states: *The more people are informed about the safety requirements and achievements, the more they are motivated to participate and accomplish safety results.*

Effective communication improves motivation, and reasons must be given as to why certain steps have been taken for safety; e.g., why are we introducing the safety management system? Highlights and safety achievements must be communicated to management, the unions, and the workforce.

Safety system successes can be publicized via the weekly safety newsletter, internal email, or be posted on the company's internal website and on the safety notice boards. The more safety communication that takes place during a safety culture change intervention, the better.

According to the Health and Safety Executive (HSE) (1976):

High visibility of management's commitment to safety means senior managers should visibly and repeatedly demonstrate their commitment to safety throughout all areas of the organization. This will create a shared vision of the importance of safety. This can be achieved by the use of:

- Verbal communication (e.g. scheduled safety tours and meetings)
- Written safety communication (e.g. statements, newsletters)

PRINCIPLE OF SAFETY PARTICIPATION

This principle states: *Safety motivation, cooperation, and culture change increase in proportion to the amount of participation of the people involved.*

Safety involves all people, and safety activities that facilitate the implementation of the safety management system should involve everyone. Employees should be informed of the facts at all times and should be asked to give input and suggestions on aspects of safety that directly or indirectly concern them.

Dr. Mark Friend (2012) lists four tactics to encourage employee involvement in the safety culture shift:

Encourage employees at every level of the organization to participate in safety and safety processes. This occurs in numerous ways. Examples include:

- Soliciting input from workers regarding the hazards they face and appropriate courses of action for correction.
- Asking workers to help identify hazardous processes, equipment, materials, etc.; the hazards associated with each; and what needs to be done to eliminate or compensate for those hazards. Workers should be involved in every process.
- Including employees at every level in the planning, organizing, and execution stages of the safety program and moves to shift the safety culture.

Ask for their opinions and attempt to respond to as much input as possible. Employees should be “in on” anticipated changes and should not feel surprised as attempts to make shifts in culture are initiated.

- Utilizing employees in routine safety activities to include incorporation into routine inspections of their own work area and processes prior to and during operations and participation in team and task force activities as new approaches to safe work are explored and adopted. (p. 2)

One of the elements of the safety system—the near-miss incident reporting system—levels the playing field, and employees and managers at all levels can contribute to the system by reporting near-miss incidents and other safety issues. Since attaching their names to the reports is optional, they have some anonymity if desired. Many who have never partaken in the safety system events can now become active members without fear of repercussions or reprimand. The main reason for the failure of near-miss incident reporting and other safety-related reporting systems is that the immediate reaction to the report is to punish the person who did the reporting.

PRINCIPLE OF SAFETY DEFINITION

This principle states: *Decisions concerning the safety culture and the safety management system intended to improve culture can only be made if the basic or root causes of the safety problem have been identified.* This principle can also be stated as: *A logical and proper decision can be made only when the basic or real problem is first defined. (Prescription without diagnosis is malpractice.)*

The principle of safety definition states that the basic or root causes must be identified before a remedy is prescribed. Safety culture and climate surveys can assist in determining the strengths and weaknesses of a safety culture and help identify the basic causes of a less than acceptable culture. Once the problems have been identified, actions can then be effectively taken.

PRINCIPLE OF SAFETY REPORTING

This principle refers to the safety department and states: *The higher the level to which safety personnel report, the more management cooperation they are likely to obtain.*

Safety coordinators are the catalysts in the safety system and should function as such. Safety coordinators should not be in a line function, but rather in an advisory capacity in a staff function. In many successful companies the safety director is on an executive level and reports directly to the CEO.

It is likely, as Cooper (1998) suggests, that the status of the safety coordinators is a reflection of management’s commitment to safety:

If a senior manager does not see the importance of safety it is unlikely that the safety officer will be given management status. The effectiveness of safety committees is also likely to be influenced by management commitment. If the senior executive sees safety as less important than other aspects of the organization e.g. production he/she

is unlikely to support the committee through attending meetings and implementing suggestions for change. (p. 205)

The safety department will undoubtedly play a major role in the culture change program and the maintenance of the SMS, and therefore needs to be correctly staffed, structured, and focused. Correct qualifications and relevant experience of staff members are essential to the success of the endeavor.

SAFETY OFFICERS

Historic practices of calling safety professionals *safety officers* should be changed, as should their roles. They are *safety advisors* because of the role they play and should not be portrayed as punishers or enforcers. If safety staff believe that employees' actions are the only cause of accidents and are intent on focusing on the fault of persons only, this mind-set should be changed as part of the safety culture change.

PRINCIPLE OF SAFETY AUTHORITY

This principle states: *Participation in the safety system and motivation to accomplish results increases if people are given authority to make decisions concerning safety.*

Safety objectives must be set, and people must know what their authority within the safety management system is. Ownership of a segment of the safety system can help lead to participation and safety success. All employees, irrespective of their standing, should be given the ability (authority) to participate actively in the safety management system. This participation is a key component of safety culture change.

PRINCIPLE OF INTEREST IN SAFETY

This principle states: *If management is interested in safety, the workforce will also be interested in safety.*

The workforce will only become interested if management shows an interest in the safety results achieved by them individually and as a group. Management must set the safety trend and help them achieve safety objectives.

Taking action on reported hazards and deviations from standard will indicate to the workforce that management is indeed taking safety action. Reporting back on the number and nature of safety-related reports generates tremendous interest in safety. This contributes to building a positive safety culture.

PRINCIPLE OF THE CRITICAL FEW

This principle states: *A small number of basic causes could give rise to the largest number of safety problems.*

A few critical jobs could be responsible for the majority of accidents and injuries occurring within an organization. The safety management system should incorporate a risk-ranking procedure of all tasks carried out in the various departments in order to isolate the critical few that have major potential to cause loss.

The safety culture change process should also highlight where it can have the biggest impact with the least amount of effort.

PRINCIPLE OF SAFETY RECOGNITION

This principle states: *Safety motivation increases as people are given recognition for their contribution to the safety effort.*

Commending and encouraging people for safe acts goes far in ensuring that those safe acts are repeated. Good safety practice should be praised, and this praise should be made in public where possible. The same is applicable during a safety culture change period. The more employees are recognized for participating in the change process, the more they will participate. This ongoing recognition must form a part of the safety system and must occur regularly.

Recognition in safety demands “playing the ball and not the man.” It requires managers to fix the problem and not the person. It forces leaders to deviate from traditional management styles when dealing with issues normally calling for disciplinary measures. It will challenge leadership at all levels but will help create more positive leadership across the organization.

According to Bird and Germain (1996),

The need for sincere recognition is among the most basic powerful psychological hungers which most people have. When that is not met in legitimate ways (positive behavior reinforcement), people will stop trying as hard or attempt to get recognition through unacceptable means (horseplay, rule violations, showing off, etc.). (p. 46)

PAST SAFETY EXPERIENCE PREDICTS FUTURE EXPERIENCE PRINCIPLE

An organization's past safety experience and efforts tend to predict the safety effort and experience of the future.

Attempts to change the safety culture may have failed in the past, and if a direct effort and full commitment is not made, will fail in the future. This failure may also have been due to the organization attempting to change the behavior of employees.

The introduction and maintenance of a structured safety system will lead to a safety culture change within the organization. If one considers the effort, commitment, and change to the way safety is normally managed in a plant, the safety system will bring about a culture change. It will force leadership to become leaders and to create a positive environment where employees can feel comfortable participating in the safety activities.

Safety management normally experiences more resistance than any other aspect introduced into an organization. The safety culture that is embedded in the organization tends to prevail in the future. Safety attitudes and behaviors experienced in the past tend to be carried over to the future. These can only be changed with a deep, ongoing, and concerted effort to make the implementation of the safety system work.

PRINCIPLE OF SAFETY APPLICATION

The principle of safety application states: *The more the various elements of safety are practiced and applied, the more they are understood and accepted as day-to-day activities.*

The more we talk about safety, the more we improve it.

No safety management principle is more applicable to safety culture change than the principle of application. The more the safety culture is affected by the safety system interactions, the more it will be understood, accepted, and practiced.

As with any new or different innovation, the introduction of a safety system needs to be well structured and become an integral part of the culture of an organization. It must be an ongoing program and not just a nonsupported gimmick or flash in the pan.

Tenacity around the encouragement of reporting and safety feedback from the workplace should be encouraged on an ongoing basis. Eventually the reporting and rectification of problems will become integrated into the day-to-day work process and will become part of normal activities rather than an added burden. This will indicate a positive safety culture improvement.

One method of keeping safety in the foreground is the practice of opening every meeting with safety as the first topic of discussion. These could be financial meetings, production meetings, or other meeting and gatherings. A few minutes discussing safety before the normal agenda of the meeting begins is a practical method of safety application. Incident recall sessions where near-miss incidents are discussed is an ideal way to open a meeting and is a method of sharing safety thoughts and information.

PRINCIPLE OF POINT OF CONTROL

The best opportunity for a change in the safety culture lies where the work is carried out—at the workplace. This principle of point of control states: *The greatest potential for control tends to exist at the point where the action takes place.*

High-risk behaviors and conditions mostly exist where the work takes place. The heart of an organization's safety culture centers on the workplace. Management is not always at the workplace; therefore, the employees doing the work are key when it comes to reporting deviations such as high-risk work practices, hazardous conditions, and the occurrences of near-miss incidents and accidents.

Accidents occur where the work is done, and this principle states that the best opportunity for safety control is there as well. Remedial measures to prevent a recurrence of an undesired event are best directed at the point of control where the greatest potential for loss exists. Safety and health representatives are in the workplace, at the point of action, and can contribute greatly to the safety process because they are where the action is.

According to A.A. Buys (1994):

Management isolation occurs when a chief executive or manager is isolated from his workers corps as leader, with the result that he loses contact with the activities of the organization and situations in his command order. This can be catastrophic for anyone in charge of a project or business, as that person is also in charge of the safety. (p. 4)

PRINCIPLE OF MULTIPLE CAUSES

The principle of multiple causes states: *Accidents, near-miss incidents, and other problems are seldom, if ever, the result of a single cause.*

This means that accidents caused by a failure in the management system are often caused by a number of items or multiple events. Accidents have often been defined as *a series of small blunders.*

Traditionally the only reasons for accident investigations were to appropriate blame and find a guilty party. This will never solve the problem or determine the root causes of downgrading events, and will not fix the real cause of the problem. This is termed prescription without diagnosis. Finding one cause of an accident is totally insufficient, as there are always a number of reasons for an action or incident.

As stated by the principle of definition, if the real causes of accidents and near-miss incidents are not found, how can real solutions be proposed? If all the contributing factors are not investigated, how can the causes of the events be identified and rectified?

CONCLUSION

Management commitment, leadership, and the application of safety culture change principles are vital to create positive safety culture change. Safety is a line management function, and only by integrating safety authorities, responsibilities, and accountabilities into the safety management system will management be successful in the daunting task of changing safety culture. Dr. Mark A. Friend (1997) states, “Only members of the management team can create or change the environment. (And it is, after all, their job to do so.)” (p. 34).

7 A Culture of Fear

INTRODUCTION

One of the biggest obstacles to safety efforts, the prevention of accidents, and change interventions is the fear factor that surrounds all aspects of safety at the workplace. Unless this fear factor is identified and the root causes of it eliminated by changing the safety philosophies of the organization, all efforts to introduce a positive safety culture will fail.

For a safety culture change intervention to be successful, there must be a climate of trust between employees and management. This includes declaring a truce and moving the focus away from injury blame fixing and fault finding to a safe space where injuries can be reported without fear of reprimand—a space where employees' safety concerns can be freely expressed. This amnesty is the only way to create a climate in which old embedded safety habits and beliefs can change.

EMBEDDED CULTURE

Few safety professionals and fewer safety researchers will freely admit to the existence of a safety fear factor at workplaces in commerce, mines, and industry. Fear is embedded into most organizations when it comes to safety, as safety is seen and gauged as the number of injuries that occur as a result of accidents. If you happen to be injured, you have spoiled the safety record, and rightly or wrongly, you are in the spotlight. There seems to be an automatic finger-pointing exercise after an accident, and we always seek out a guilty party. Employees are afraid of being fired if they are injured in an accident. Even though this seldom actually happens, the paradigm remains embedded in their minds.

BEHAVIOR IS A COP-OUT

The behavior-based safety “fraternity” and some psychologists who specialize in safety management have worsened this phenomenon by putting forth the theory that “unsafe acts of workers cause 97% of all accidents.” They do not take into account that the workers are simply doing what their managers want, and that is getting the job done. Managers often turn a blind eye to condoned unsafe practices as long as no one gets hurt and the job gets done. Once someone is injured, managers can always refer to the behavior-based safety statement that the worker was doing something unsafe, so he is at fault and management is not culpable.

“HE SCREWED UP”

At one company, I was sitting outside the safety director’s office in the safety department waiting to see him when a supervisor dragged a badly bleeding employee into the hallway. The employee, dressed in full personal protective equipment, was bleeding from a head wound, and the blood was running down the side of his leg and dripping on the floor. Shocked, I asked what had caused the accident. “Oh, he screwed up badly” was the reply from the supervisor. “Well how do you know it was *him* who caused the accident?” I asked. The supervisor looked at me in surprise, looked the young man up and down, and said, “Well *he’s* bleeding, isn’t he?”

INTERNATIONAL CULTURE

The fear factor and the blaming of employees for accidents are international occurrences. Most countries still gauge their industries’ safety performance by the number of injuries experienced. Most legal entities that enforce safety also measure an organization by the injury rates.

Inspections are triggered when a large number of injuries are reported. No wonder, then, that the main focus is on injuries, and inevitably the person who suffered the injury—commonly referred to as the person who caused the accident.

BLAMING THE WORKER

Accidents are caused by a failure in the system, a series of blunders. If one reviews the loss causation model and the three luck factors that influence the course of action in the accident sequence, it becomes clear that the injury is the result of good or bad luck. The weakness in the system is neither identified nor rectified if there is no resultant injury. It’s easier to blame a worker for the accident than to spend time and effort investigating the real causes.

In many instances, if the accident (the event) does not result in an injury, it is largely ignored, as it did not affect the safety record. It’s a case of no blood, no foul! Yet, under slightly different circumstances the event may have caused serious injury. What seems to matter most is the resultant injury, and this is where the safety attention and focus lies.

As Bill Hoyle (2005) says,

Workplace safety is measured by only one statistic, the OSHA recordable rate. Based on this statistical yardstick, continuous process industries continue to be among the safest industries in the country and are getting safer. Many plants have celebrated working millions of hours without a lost work day accident. While all eyes are on the OSHA recordable rate, releases of hazardous materials, fires, mechanical breakdowns and near misses are not included in the safety statistics. (p. 7)

SAFETY BRIBERY

In an all-out effort to reduce the injury rate, employers came up with the safety bonus regime. Very simply, they offered employees a bribe in the form (often) of hard cash if the employees were *safe* and did not suffer any injury during the prescribed period. If managers want “zero injuries,” they will get zero injuries, especially if they are *paying* for zero injuries.

Sometimes this bonus is in the form of a production bonus, which also has the effect of subconsciously forcing the worker to work faster to meet the production targets. Working faster creates a high-risk situation once again driven by money.

Money is often called the root of all evil, and in safety, money paid to be injury-free fits that description. I have seen employees hide injuries, lie about injuries, and do anything in their power to cover up injuries, all for the money. Paying employees a safety bonus is tantamount to encouraging them to be dishonest about their injuries and to purposefully hide them so that they can collect the monthly so-called *safety* bonus. This does not make employees work safer! It makes them more clever at hiding injuries and deceiving the system. The reasonable man theory (i.e., how the average person would behave) says that most workers would do the same.

INJURY-FREE BONUSES

Paying a safety bonus (injury-free bonus, to use the correct term) lulls management into thinking it is running a safe organization; meanwhile, the injuries are being driven underground so that bonuses can be received. This culture of safety bribery is one of the biggest obstacles to changing the safety culture at the workplace.

According to Hoyle (2005),

If you get to a safety target, for example two million hours, everyone gets prizes such as a sharp safety award jacket. Gain-sharing and variable pay awards are also based on having low injury statistics. Prizes and awards are behavior modification techniques called positive reinforcement. Safety consultant Thomas Smith explains that, “the research shows that positive reinforcement is as bad as negative reinforcement. It’s just a different side of the same coin. The ultimate goal is to control people.” (p. 17)

Hoyle (2005) continues the discussion, this time referring to the peer pressure created by bonuses:

Many workers know that the scoreboard injury numbers are often the result of creative book-keeping and of assigning injured workers special light duty work while they heal. The numbers may be a fantasy, but the jackets are real, so complaints are kept to a minimum. Workers are also keenly aware of the powerful peer pressure to not report injuries. Reporting an injury means you will be blamed by your peers for taking money and prizes out of the pockets of your co-workers. Million-hour jackets, gain-sharing awards and safety scoreboards are a favorite part of management’s behavior modification tool box. Management recognizes that the problem behavior that they are most concerned with is to entice workers to think twice before reporting injuries. (p. 17)

UNREPORTED INJURIES

We got our usual weekly call from our daughter recently. Our son-in-law happened to be working on contract on an oil rig somewhere out on the ocean, and our daughter told us that he had slipped on the platform and injured his back. We immediately asked if he had reported it and received medical treatment, knowing the long-term effects of back injuries. She replied, “No, he didn’t report it,” and when we asked why, her reply was, “Oh, he doesn’t want to lose his safety bonus.”

Paying people to be injury-free drives injuries underground. Disciplining people for being injured also drives injuries underground. Removing certain privileges and openly ridiculing injured employees drives injuries underground. With all these injuries going unreported, management is lulled into a false sense of security and thinks the plant is safe. Meanwhile, under the surface, you have the walking wounded running the factory. (McKinnon, 2007, p. 74)

INJURIES OFF-THE-JOB

According to the latest injury statistics released by the National Safety Council, for every one injury at work there are three home injuries (non-work related) reported. Are U.S. homes so unsafe? Or are these statistics now showing the result of many years of the industrial injury-reporting fear factor? Are employees taking work injuries home because of the fear factor?

TAKING THE INJURY HOME

To avoid the immense peer pressure and pressure of the safety culture that calls for “zero harm,” employees suffering injury often take their injury home and report it as a “home injury” or an injury incurred during a sporting or recreational event. Not only is the injured person under pressure from his peers, but from the entire organization as well.

The converse is also true, as in some instances off-the-job injuries are sneaked into the workplace and posed as work-related injuries for the free medical benefits offered, and in some cases, the workers’ compensation payable.

UNDERGROUND MINE INJURY

I recall the case of a miner who was working in an underground area where there was no illumination. The only source of light was from his cap lamp. The walking surface was full of mud and covered with a layer of muddy water. One day, while walking down this drift, he stepped into an 18-inch hole hidden by the muddy water, twisted his ankle, and fell to the ground in pain. Despite his immense pain, he continued to work for the next 6 hours until he collapsed in agony and called for help.

Once on the surface, he was treated at the medical center, where his expensive mining boot had to be cut off with a pair of tin snips because his ankle was so badly swollen. When interviewed it became apparent that he and his crew would have received the \$500 monthly safety bonus if all members of the crew were injury-free

for the month. If one of the crew were injured, all members would lose the bonus. He had suffered the agony of working on a badly injured ankle for more than 6 hours because he did not want to reveal the injury and be the cause of his team losing the safety bonus.

SAFETY INCENTIVES

Thomas A. Smith (1998), in his article “What’s Wrong with Safety Incentives?” states:

Safety incentives/rewards create competition and fear within an organization. Although many believe that competition is positive, research dispels this myth. External competition will always exist and it does drive business to perform better. Internal competition, however, is not positive. It creates winners at all costs. This is true in both production and safety. For example, an employee may not report an injury because he/she feels they are spoiling the department’s record, which would mean no reward. (p. 44)

E’S STORY (AS TOLD TO ME)

“I am a 25-year-old woman with the body of a 40-year-old,” she said during the interview. “I was moving 55-gallon drums in a storage area. My equipment operator was in a hurry and didn’t want to do the job. He was very resentful that he got stuck with the job. He started rushing the job and he was going too fast, dropping things. It was a hot day. When the forklift with the attachment came to pick up the drum, it had to be guided in and I had to make sure it had hold of the drum before being picked up. We had to push the 55-gallon drum into the hold, and keep on pushing it to get the forklift to pick it up. He would come in, but he kept hitting the drums too hard when I pushed them. I was getting more and more cautious.

“Then he came in to grab a load of drums off the pallet. There were only 2 drums on the pallet. It was an older pallet, and when he came in, he came in too fast and hit the drum. I was trying to tell him to stop, but I didn’t realize that my foot had got caught. He kept coming even though I was yelling and screaming for him to stop. He kept coming, and there was a piece of equipment behind me so I couldn’t back up, I couldn’t get out of the way.

“He ended up smashing into me with the drum and basically forcing it over both of my feet. The force of the impact hyper-extended (bent backward) my one knee, broke one foot and pulled muscles in the other foot. Later we found that I had a back injury from hitting the piece of equipment that was behind me.

“Well, anyway, he was an hourly worker so he didn’t really get into trouble at all. I had to fill in an accident report and it had to be signed off by the safety department. I had to go to the hospital that day with a broken foot and everything else.

“When I came back from the hospital I was asked (I was supposed to take 2 weeks off) no questions. Two weeks off, which was what the doctor originally said. When I came back the safety guy said to me, ‘Well, if you take time off it’s a lost-time accident. We will lose our bonuses and the safety department will lose their bonuses.’ The bonuses were being paid out soon. It depends on how much you make. Mine was about \$800. The supervisor’s was probably about 2 grand [\$2,000]. We only got bonuses once every 2 years. This is when the price of the product was still high and everybody had done a real good job. Our division was one of the prize properties at the time.

“So, anyway, he asked me if I could come to work and they would give me a light duty job. I wouldn’t have to leave the office space. It’s like working. Well, I didn’t know what I was supposed to do, you know. The basic impression I got was that I had to go ahead and do the light duty. I was brand new there as a salaried individual. So he calls the doctor back, and asks the doctor if I am put on light duty, will he release me? Well, the doctor was the company doctor, and of course he was going to say ‘yes,’ you know.

“So they released me but it didn’t turn out that I had a light-duty job. I ended up getting stuck with my same responsibilities. I had to do the work. I had to put my boots on, even with my broken and injured foot. I was in physical therapy for my injuries, but I did not have the time to do all the exercises. My injuries did not heal correctly and I am still having problems with my foot, my knee, and my back. We never had to report a lost-time accident. The safety record was intact. They already got their bonuses, and to this day they still report that they hadn’t had a lost-time accident.” (McKinnon, 2007, pp. 164–165)

CONDONED PRACTICE

One of the hidden causes of many accidents is condoned practice. This is when tasks are carried out in a high-risk manner knowingly, and both peers and managers turn a blind eye to the practice. Shortcuts are taken and high-risk actions are committed and no one says anything. This practice is normally part of the safety culture of an organization and must be identified before any change can be brought about. Employees have been doing the same actions over and over again and have been getting away with it without injury, so it becomes part of “the way we do things around here.”

Managers are just as guilty as workers when it comes to condoning high-risk acts if they ignore the transgression or take no action when they are aware that the practice takes place. The fact that management allows or tolerates the practice means that they actually put their stamp of approval on it: They condone unsafe work.

FEAR OF REPORTING

One of the reasons for the nonreporting of near-miss incidents, hazards, and other safety issues is that the employee is held accountable for the item he or she reported. This is one of the main reasons for the dismal failure of this important aspect of a safety system. Often, on reporting a hazard, the employee is challenged with: “What have you done about it?” Employees may be embarrassed to report injuries; they may feel ashamed that they were injured and do not want to go to the emergency room. This is part of the macho attitude that exists in some industries. They fail to report property damage accidents and many high-potential near-miss incidents, as they may be challenged or held accountable for the event. This is similar to shooting the messenger who brings bad news. Often the organization is unaware that this has become the culture.

John R. Childress (2009) calls this “familiarity blindness”:

Executives who have spent several years inside an organization become blind to the culture, mainly because they are a part of it. It’s akin to the notion that fish don’t have

a concept of water since they are always in it! Executives coming in from the outside can tell you exactly what the new culture is like, but soon they become immersed in the culture and lose their perspective—“that’s just the way we do things around here!” (p. 3)

DISCIPLINE

One of the biggest obstacles to reporting a safety issue is that the employee is punished, which is a knee-jerk reaction deeply embedded in safety cultures. The excuse here is: “Well, I would rather discipline him than have to visit him in the hospital.” After an accident people become very emotional, and line management automatically look for *who* caused the accident rather than *what* caused the accident.

This discipline is seemingly all that managers know about accident cause rectification. Once again, in a culture of blame for accidents this would seem to be a normal course of action. No safety culture can be built as long as such a situation exists.

As will be discussed, managers must understand what causes an accident and how to identify the root causes of an accident before they can embark on creating safety amnesty, which is a vital ingredient for safety culture shift. Managers must understand that accidents are caused by a series of small events and failures that culminate in some form of loss, the most visible being the injury to a person. Disciplining an employee after an accident is treating the symptom and not the cause of an accident. This not only creates a barrier for future safety innovations and improvements but also encourages employees to hide accidents. Fear is created around accidents, and this fear factor will hamper the improvement of a safety culture (Figure 7.1).

To test the fear factor theory, I interviewed 29 miners and asked them if they would report it if they were injured in a work accident. Twenty-eight said no. Only one said that he would report the injury and that was only if, as he put it, “I am so badly injured that I can’t crawl out to my car in the car park and drive home.”

FEEDBACK

Employees often see no action taken on the report that they submitted. Late or no feedback discourages reporting. Some employees refuse to report anything over and above the normal, as they do not receive recognition for reporting.

Even Lord Cullen, as quoted by the HSE, recommended a no-blame culture to the British Rail industry when he said,

I recommend to the industry the development of an acts and blame culture in which information is communicated without fear of recrimination and blame is only attached when this is justified. (HSE, 2005, p. 7)



FIGURE 7.1 The safety fear factor.

COVER-UP

Because of the safety fear factor there is almost invariably a cover-up after an accident. This most certainly happens after a fatal accident, where employees are terrified of becoming involved in the investigation, especially if legal agencies are involved. This cover-up is another spin-off of the fear factor in industry that hampers the process of creating a positive safety culture. It is a result of years and years of blaming the worker for accidents and will not be changed in a hurry.

After most accidents there is finger-pointing, and the distrust between management and unions appears at its strongest.

THE BIGGEST CHALLENGE

The biggest challenge to the intervener introducing a safety culture change is the fear factor around safety and its components. This is a common factor in most workplaces internationally and is more prominent in countries where the possibility of losing one's job as a result of being injured is a reality. Even first-world countries' employees have this perception, but the strongest force is the fear of embarrassment and the fear of perceived consequences after the accident.

DECLARING AMNESTY

Part of the commitment from the executive leadership team to improve safety culture would be to declare amnesty. This would mean that the playing fields would be leveled and the fault-finding attitude of the past would be set aside. Understanding of the cause and effect of accidental loss will enable line managers to identify all of the accident's causes and not stop the investigation once an unsafe behavior is encountered. Most accidents will have a component where an employee's behavior or actions are questionable, but the focus should now fall on how the system can improve in the future to stop this happening.

CARDINAL RULES

Discipline for safety issues should be redefined around the cardinal rules of the organization. These cardinal rules spell out clearly which transgressions are liable to end in some form of disciplinary procedure if transgressed. Managers and employees alike then know when discipline is called for and when it is not. Cardinal rules could include:

- Carrying a weapon or firearm on the premises
- Fighting
- Being under the influence of alcohol or drugs while at work
- Disobeying a direct instruction or order
- Endangering the safety of self or others
- Sexual harassment

Often the failure to lock out, tag out, and try out hazardous sources of energy is a company cardinal rule. Some organizations go so far as to discharge anyone for breaking a cardinal rule.

Because safety involves people and people getting hurt, emotions run high after an accident, and discipline is driven by emotions rather than being based on facts of the event. Only if there is a major and willful breach of the safety rules should discipline be considered. This discipline should also be applicable to managers and not only workers. Positive discipline should always be the first recourse. This message should be communicated to the entire organization as a starting block for safety culture shift.

Bill Hoyle (2005) explains the futility of focusing on worker error to solve safety problems:

The basic premise of behavior modification programs is that the primary cause of accidents is worker error. This blame-the-victim concept provides little opportunity for effective accident prevention. Behavior modification does not focus on the fundamental safety problems that we face in the continuous process industry. For example, it does not address the need to change the dangerous contractor system or the unsafe practice of running plants far beyond their safe design limits. (p. 2)

CREATING A SAFE SPACE

A safe space now needs to be created where employees can feel comfortable about discussing and reporting safety-related issues. This employee empowerment enables management to get a realistic picture of what the safety concerns are in the workplace. Real solutions can only come from the experts in the workplace—the employees. Employees need to be listened to. Reporting systems should be anonymous. In a positive safety culture it is not who reported, but what was reported. Focusing on the *what* is important because that is the risk that needs to be remedied.

ACCIDENT INVESTIGATION

Accident investigators must be trained for this type of work before they can partake in investigations. This will eliminate the finger pointing normally attached to accident investigations. Trained investigators will know to look for the facts and not find fault. The facts of the event must be obtained by immediate and root cause analysis before any conclusions or remedies are proposed. Inviting members of the union to participate in the investigation also creates transparency. Witnesses should not be intimidated, and the investigation should look beyond the injured person.

NEAR-MISS REPORTING

Once again this reporting system, which may be the most important in the safety system, should be anonymous. Near-miss incidents, which may have been loss-producing events under slightly different circumstances, need to be reported. The focus should not be on who reported and why he or she didn't do something about it. A strong safety culture is about how we fix the problem so that it doesn't happen again.

SAFETY OBSERVATIONS

Safety observations are not only one employee observing the actions of another, but are general observations noted during the course of the workday. Observations, once again, should not be about *who did what wrong*. Observations are intended so that high-risk trends can be identified—not who committed the most high-risk actions. A trend could indicate that there is a problem with the system that forces employees to take shortcuts. Bill Hoyle's (2005) example is a good indicator of this:

Management issued a bulletin threatening discipline against anyone not wearing all their PPE (Personal Protective Equipment). Co-workers of the injury victim did not like seeing their friend blamed and knew that it was common practice to not wear all of the hot and awkward acid gear when taking samples. However, they conceded that he should have been wearing more PPE in order to avoid the accident.

Further investigation by the Joint Health and Safety Committee found that there was more going on in this accident than a mistake by a worker. The procedure for collecting sulfuric acid samples was to hold an open cup under a bleed valve on a pressured line on the acid pumps. The acid sometimes splashed out of the cup which made wearing PPE necessary. The committee recommended that acid sampling points

should be redesigned to eliminate the potential for splashing altogether. One simple way to do this was to sit the sample container in an enclosed sample box with a glass door where the valves could be operated outside the box. This would eliminate the exposure and the need to wear most of the cumbersome PPE. (p. 3)

ANONYMOUS REPORTING

The reporting of safety issues must be made easy, simple, and confidential. Many organizations have a telephone number that is a hotline to a recording system. Employees can dial the number in secrecy and report unsafe conditions or acts or other items concerning safety. This gives employees confidence that they can be a part of the safety system without repercussion. Computer terminals can have an input spreadsheet where the issue is reported and submitted to a central receiving office that distributes the item to the correct department or person concerned.

Speaking to a supervisor is not always an ideal method of reporting a safety issue or concern. Employees may feel more comfortable reporting via other means, as they may have reported to the supervisor in the past with negative effects. In some instances the supervisor may have taken the report as a personal reflection of his leadership and may have taken offense.

CASE STUDY

This case study regards a report issued to the deputy director of an organization by the newly appointed safety manager, who had been employed as a safety change agent. The name of the organization and other details have been changed.

This is a confidential report (McKinnon, 2004) on injury management and lost-time injury (LTI) reduction by means of peer pressure and medical staff misdirection or intimidation.

Safety is not defined clearly at this company and is therefore synonymous with “lost-time injury-free”; this is where the problem starts. The first item to catch your attention upon entering the gate is the “safety record” board listing the departments and their safety achievements. Safety achievements at this company are measured in injury-free periods.

Employees are rewarded to be injury-free. Injury-free is no indication of the management work being done to reduce risks arising from the business process, and has little to do with the safety effort, due to the luck factors that determine the consequence of an undesired event.

The second billboard clearly states that if you do not work “safely,” then you are not welcome at this company. (It’s OK not to wear your vehicle safety belt, but woe betide being injured, that means you were unsafe.)

Safety coordinators teach employees six or more forms of punishment or consequence that will happen to them (individuals) if they are injured, including being:

- Issued “warning letters”
- Being listed as “black sheep”
- Losing their \$20 gold card award
- Reducing their possibility of promotion
- Placing their shift in the undesirable safety record

- Being deprived of “man of the month”
- Being deprived of merit and normal increases

There is a strong fear factor in existence concerning the reporting of accidents, near misses, and injuries. Here are some comments sourced from the safety consultant visit between March 17–28, 2003, and the external audit report of 2004.

- “Not all injury and near-miss incidents are reported.”
- “We must remove the fear consequence factor.”
- “Culture of blame ...”
- “Many incidents and injuries are hidden/covered up.”
- “LTI [lost-time injury] 1–3 days.... I have been told it is political.”

There is apparently fierce competition among the big players in the area concerning the “safety record,” with the company over the road having worked some 7 million man-hours, supposedly without lost-time injury, in the past.

So fierce is the strive toward injury-free periods of millions of hours that this company changed the rule of the game, and instead of 1 day being recorded as a lost-time injury, moved the envelope to 3 days! This reduced the injury rate favorably because the rules had been changed.

Injuries that result in light duty are not deemed lost time, and supported fractures are not considered lost time either—both are in fact lost time according to the industry’s rules on injury measurement, which follow ANSI Z16.

The first concern of the leadership of an accident victim is not the welfare of the patient, but rather the safety record (gathered from the medical department interview).

There is a general trend from all levels of management, including general managers, to pressurize the medical department into playing down the severity of the injury in an all-out effort to prevent it becoming a lost-time injury. Pressure on the attending medical staff to prevent the injury from spoiling the record is applied in every case according to the medical team.

I was personally present in one such meeting where the victim had lifted a 20 kg bar and injured his back, but the manager of the injured was adamant that it was not a lost-time injury. An MRI clearly showed a lesion.

Concerning the case in hand, the thumb injury, I personally interviewed Joseph, and he assured me that the injured worker told him that the supervisor who took him to hospital requested the doctor not to book the man off, but that he, (the supervisor) would find some light-duty job for the man.

If an employee is off of work as a result of an injury caused by an accident that was *his fault*, he also, apparently, loses money, which is an incentive for him to stay at work and also to refrain from reporting the event.

Individual employees are paid \$250 if the department works 1 million injury-free man-hours, so this is a motivator to drive accidents and the subsequent injury underground. For the 3.5 million record, a 5 g gold bar was given to all employees!

Currently the entire safety culture at this company centers on the word *safety*, which is perceived as being injury-free, and a lot of effort is directed to be injury-free rather than risk-free.

Outside consultants have seen this clearly and have reported on the issue, but such reports have been totally ignored and This Company plods on with systems that contribute no value to This Company. (“If it doesn’t add value—why do we do it?” This statement was extracted from the company charter.)

Reporting on misleading injury rates also doesn't add value, nor does making up your own set of rules by which you classify injuries. This is not "improving the system."

Is this why the employee survey indicates that employees still rank this company as an unhealthy and unsafe place to work in?

Recommendations

This company and its management must be informed of the true loss-causing sequence of events, the updated accident sequence, so that they can see it is better to institute controls based on risks, rather than trying to minimize the consequences after an accident. OSHA, in the United States, has outlawed incentive schemes based on injury performance.

This company should refocus the competitions among the departments to focus on upstream safety measures, e.g.:

- Number of near-miss incidents reported
- Number of safety observations
- Housekeeping score
- Quality of accident investigations
- Results of the internal departmental audits, etc.
- Implementation of an audit-based safety system

How do we do this?

I suggest holding a senior management lunch meeting, 2 hours in duration, where modern safety practices can be explained and where the traditional way we do things can be exposed for the waste of time it is, and then reach consensus to embark on a different approach to the way we measure and practice safety. (This has been recommended by at least two consultants in the past.) (2004, confidential report)

In 2001, Steven G. Minter, in the *Occupational Health and Safety Magazine* (2001) quoted me on the safety record:

"The safety record is the worst evil because it makes people scared to report injuries," he [McKinnon] said. Moreover, he noted, incidence rates are "a record of failure and not an accurate record either." He cited a company that had been listed as going more than 66 million man-hours without an accident, but an OSHA investigation found 117 injuries had not been reported.

CONCLUSION

Irrespective of the type of industry, mine, or workplace, there exists a fear factor around being injured on the job. There is also a fear factor that prevents employees from participating in safety activities and reporting safety issues.

There is fear of ridicule, which among workers is very prominent and very real. In the underground mining fraternity this is referred to as mining macho syndrome, and tough miners are reluctant to report their injuries, as they have to go to the first aid station or hospital for treatment. This creates embarrassment, stress, and fear of being singled out.

The measurement of safety by means of the injury rate, which is promoted by legal safety agencies, also creates a fear factor should an injury occur that may put the company in the legal spotlight and call for an on-site inspection.

Employees are terrified to ruin the record, as they want to be part of the workplace team and not the one who ruins it for everyone. There is also fear created by the myth that one may lose his or her job if he or she is injured at work. In many third-world countries this is a reality, and for the sole breadwinner to lose his or her job while unemployment runs at 25% of the population could be disastrous.

Shifting the safety culture requires this fear factor to be addressed, exposed, and removed. This is easier said than done and will test management's skills and abilities to the limit. Without a change to modify many aspects of how safety was viewed, measured, and reacted to in the past, the fear factor will still exist, and change in the safety culture may be impossible. Safety amnesty must be declared and maintained. This is the first challenge in shifting the safety culture.

The more behavior-based safety programs promote the idea that unsafe actions of employees are the cause of most accidents, the greater the fear factor will embed itself in the safety fabric of the organization. To enable a safety culture change at the workplace, the management team and employees must agree upon a new set of safety rules. The amnesty mentioned is vital. It is the only way that credibility can be shown on both sides. It is a vital platform on which to base a system approach to safety and leave the blame-fixing habits behind. This step in the safety change process will challenge line management's ability and create new stresses as the safety responsibility is evenly distributed and each party has to play a role.

8 Key Attributes of a Positive Safety Culture

INTRODUCTION

An organization's safety culture is ultimately reflected in the way safety is managed in the workplace. If the day-to-day business incorporates safety functions and activities on an ongoing basis, then safety has been integrated into the normal business process. That is an indicator of a positive safety culture.

SAFETY AS A VALUE

Taking safety as a value means that safety no longer becomes a priority in the business; it becomes one of the core values of the organization. Safety as a priority means that under difficult circumstances, priorities can be changed and rearranged. Since priorities change, safety as a priority can change too. If safety is a value, it is a fixed part of the organization and its importance does not change with different scenarios.

The organization adopts safety and health as a core value and actively cares for the workforce. The vision for the organization is that the workplace will be free of incidents/injuries and safety and health is integrated into every aspect of the work process. This attitude is evident throughout the organization from the managing director through to the newest and most inexperienced member of the workforce. (Ardern, 2012, p. 1)

SAFETY VALUES

Values are concepts. They are beliefs of what gives a sense of worth. Values are the preferences and priorities that create meaning and motivation in our lives. Values are always a consequence of our underlying beliefs. A value can also be a cluster of beliefs about specific concepts, such as honesty or integrity.

Safety values are beliefs that are shared among the employees and management of an organization. Safety values drive an organization's safety culture and priorities and provide a framework in which decisions that affect the safety of employees are made. For example, "the majority of accidents can be prevented."

CORE SAFETY VALUES

Core safety values could include:

- Integrity
- Honesty

- Teamwork
- Accountability
- Transparency
- Employee mentoring
- Care and respect for employees

SAFETY ETHICS

Management has a responsibility to the shareholders of the business, the employees, and the environment in which the organization operates. It has financial, moral, and legal responsibilities, and the safety of employees, plant, equipment, and environment is part of this responsibility.

All countries have some form of safety, health, and environmental laws, and the legal responsibility of management entails obeying those laws and regulations. Most of these laws were developed to protect the worker and the environment, and even though they only form a basic platform of safety stability, they should be complied with.

VISION

The vision of the organization pictures where the organization wants to be. It outlines what the organization wants to be, or how it wants the world in which it operates to be. It is a long-term view and concentrates on the future. It can be emotive and is a source of inspiration. The vision should have a reference to safety. For example, a manufacturing plant may include in the vision words to the effect of being “injury-free,” or of keeping its employees “free from harm.” Visions often refer to the organization as being “the preferred supplier or preferred manufacturer.”

SAFETY STRATEGY

Safety strategy is a combination of the goals toward which the firm is striving and the means, methods, and policies it uses to get there. A strategy is sometimes called a roadmap. It is the path chosen to travel toward the end vision. The most important part of implementing the strategy is ensuring the company is going in the right direction, which is toward the end vision.

MISSION STATEMENT

The mission statement defines the fundamental purpose of an organization or an enterprise, briefly describing why it exists and what it does to achieve its vision. Safety intents and commitments should be reflected in the mission statement. For example, an organization might have the mission statement “to make a profit, safely,” or “to produce world-class products without incurring harm to our employees or the environment in which we operate.”

The safety mission, which should feature prominently and be prominently displayed, is what the organization wants to be in terms of a successful and safe organization.

SAFETY PHILOSOPHY

The organization's safety philosophy is an accumulation of the organization's beliefs, attitudes, and views of safety. This philosophy has a major effect on the safety culture of the company. The philosophy must be one that recognizes that safety management is both employees' and managers' responsibility and accepts that accidents have multiple causes and are not merely a result of behavioral issues. The organization's safety philosophy must be founded on modern safety management principles and not outdated thinking.

TRADITIONAL SAFETY PHILOSOPHIES

Old safety philosophy assumes that at any given time workers make a choice to work safe or not, whereas modern safety thinking assumes that accidents are defects in the total system and that people are only a part of the system.

The method for safety improvement, according to antiquated safety philosophy, is to persuade and appeal to workers to be safer, whereas modern safety thinking is that methods for improvement involve identifying appropriate ways to improve the system.

Outdated safety philosophy assumes that accidents are the worker's fault. Modern safety philosophy assumes that there are multiple causes for accidents, and that the root causes and the reason behind the behavior should be sought and rectified.

Traditional thinking is that the main measure of safety failure or success is the injury rate, while new thinking is that there are multiple ways to measure safety (Figure 8.1), including:

- A survey of employee attitudes and perceptions
- Number of risk assessments done
- Lockout, tag-out compliance
- Number of safety committee meetings held
- Number of near-miss incidents reported
- Number of reported near-miss incidents corrected
- Quality of near-miss incident investigations
- Quality of accident investigations
- Number of safety and health representatives appointed
- Number of inspections done
- Number of safety talks held
- Number of critical task observations conducted
- Divisional audit score
- Companywide audit score
- Number of employees trained annually
- Number of safety suggestions received
- Injury incidence rate
- Injury severity rate



FIGURE 8.1 Aspects of a positive safety culture.

SAFETY PRINCIPLES

Safety principles are the fundamental assumptions and moral rules concerning the safety of an organization's employees and assets. Some examples of safety principles are:

- The majority of accidents do not end up in injury.
- For every one serious injury there have been some minor injuries, many property damage events, and plenty of warnings in the form of near-miss incidents.
- Accidents are not planned or budgeted for.
- All accidents result in some form of loss, which has costs.
- Accidents occur as the result of a sequence of events.
- There is normally more than one cause of an accident.
- Fortune, chance, or luck plays a major role in determining the outcome of high-risk acts and high-risk conditions.
- The outcome, or severity, of an injury is also fortuitous.
- The majority of accidents can be prevented.
- A small percentage of accidents are beyond control due to natural factors.

- Accidents indicate a system failure.
- An accident that results in serious injury may have occurred previously but did not culminate in injury.

SAFETY POLICY STATEMENT

Occupational safety and health policies are systems of codified decisions established by an organization to support the safety and health functions within the organization. Setting safety policies is when a manager develops standing safety decisions applicable to repetitive problems that may affect the safety of the organization. These are also referred to as safety and health standards to distinguish them from the *safety policy statement*.

The safety policy statement is a substitute for repetitive management decisions and is mandatory. This is the guiding document in a safety system and perhaps the most important in implementing a change in safety culture. Although the concept *safety* should appear in the vision and mission statements of the organization, the safety policy statement is the declaration of the company's safety intent, commitment, and responsibility to constantly promote a safe and healthy work environment. This policy should be extensively publicized and displayed on all notice boards, on the company website, in the employee safety handbook, and in prominent positions throughout the workplace.

An Example of a Health and Safety Policy Statement

Nothing at this company is more important than the health, safety, and well-being of our employees and their families. This company's safety leadership team believes that identifying and reducing risks will prevent all forms of accidental loss. As an organization we are determined to achieve our vision of reducing the probability of illnesses and injuries to our company family, visitors, and the communities and environment in which we operate.

We are dedicated to:

- Making risk-based occupational health and safety management a core value that drives performance
- Holding managers accountable for occupational health and safety in all of our facilities
- Providing the practices, tools, and resources via the company health and safety management system

To achieve our occupational health and safety objectives:

- Each employee, regardless of position or title, must take individual responsibility for health and safety. It is the job of each employee to create a work environment that eliminates occupational health and safety hazards. Further, we encourage all employees to be role models and leaders in health and safety at work, as well as for their families and their neighbors in our communities.

- This company is committed to complying with and, where excellent practice would demand, exceeding applicable occupational health and safety laws wherever we operate. We believe that occupational health and safety laws and regulations can and must be integrated with our effort to produce a world-class research environment.
- We will not be satisfied until we have reduced the probability, to the maximum extent practicable, of occupational injuries and illnesses occurring among our family of employees. This is the only acceptable goal, and we are dedicated to achieving it through continuous improvement of our safety management system.
- We know we will achieve these results only through each employee's participation in, and attention to, health and safety and dedication to make working safely an integral part of every job we do.

LEGAL REQUIREMENT

The British Health and Safety at Work Act (1974) requires all companies employing five or more people to have a safety policy:

According to the ACSNI Study Group on Human Factors (HSC, 1993), a written corporate statement on the safety policy and organization should be a crucial element in the promotion and maintenance of a positive safety culture within the organization. Its objective should be to establish the corporate attitude to safety and the organizational framework through which the safety objectives can be assured. (Health and Safety Executive, 2001, p. 8)

HEALTH AND SAFETY STANDARDS

Health and safety standards are targets or objectives that the company wants to achieve. They are measurable management performances. A structured safety management system (SMS) consists of a number of health and safety standards. Each element should have at least one standard, and some elements will require more than one standard.

WHAT SYSTEM ARE YOU RUNNING?

When asked what safety system organizations are running, many reply that they do not follow any form of structured safety management system but merely conform to the local safety and health laws. As mentioned previously, legal requirements are only the basics of safety, and organizations should actively pursue embarking on a world's best-practice safety and health management system. Few safety personnel have knowledge of safety systems, even though many have graduated with degrees in safety and health. Implementing such a safety management system would form a platform on which to build a positive safety culture.

STRONG LEADERSHIP IN PLACE

A positive safety culture requires strong, dynamic, and proactive management leadership. Poor or weak management cannot manage a good safety culture and is often the reason for a poor culture despite the blame put on employees for this.

Simply stated, “Leadership is interpersonal influence directed towards attaining goals”; leaders *influence* people to move in a certain direction.

Top management’s attitude toward accident prevention is almost invariably taken up by supervisors and employees. A good attitude keeps everyone working safely; conversely, if the top executives are not genuinely interested in preventing accidents, no one else in their firm is likely to be either. Any accident control program, therefore, must start with top management’s announced and demonstrated interest, if employee cooperation and participation are to be obtained. Attitudes are caught, not taught. (National Safety Council, 1993)

Most managers that I have interacted with internationally have never been to formal management training or had any form of formal training in safety management techniques, yet they end up being one of the key factors in the formulation of the organization’s safety culture. Many managers became managers because they were good production people or efficient maintenance technicians, or similar. Now they are faced with the most daunting task a manager can have: managing—not only all the other activities of a business, but also the safety and health of employees and the integrity of the plant, equipment, and environment.

Despite all the research and all that has been written about employees’ behavior changing the safety culture, the truth remains that only strong managerial leadership can change a safety culture. Managers get what they want, and if they call for a change in the safety culture, they will get it. They have the authority to bring about change, the responsibility to bring about change, and will be held ultimately accountable for the end result of the change.

It has also been argued that fundamentally leadership is the key to affecting a safety culture (Burman & Evans, 2008). Broadbent (2007), in his vocal support of Burman et al, has specifically recorded the influences of transformational leadership within safety culture development and coined the phrase “transformational safety leadership” to describe the application of his principles. (Reason, 1998, pp. 293–306)

Strong leadership means that a strong management team be formed to lead the safety change process. The change is a process; it should never reach an end when progress stops. It is a continuous improvement process and must be kept evergreen by actions of the leadership team. If a dynamic leadership team is aligned toward integrating safety into normal operations as a value, they are bound to succeed.

MANAGEMENT TRAINING

The leadership team should be trained in modern safety management techniques before they embark on the safety culture change process. If they start out on the

mission with the belief that 97% of accidents are caused by the fault (unsafe acts) of the employees, they are doomed to fail in the mission of turning the culture around. This does not mean that high-risk acts do not exist or that they aren't part of the accident scenario. What is needed is to focus attention on the reasons for the high-risk behavior and fix the root cause rather than dwell on the symptoms; after all, most accidents occur as a result of someone's good intention of "getting the job done."

COMMITMENT

The key ingredient to safety culture improvement and change is commitment from the organization that it wants to change and is willing to change the way it has managed safety in the past. This commitment must come from the board of directors, from the executive management, as well as unions and employees. There must be a total buy-in to the need for safety improvement and change and the effort that will be needed.

INTEGRITY

More than anything, the safety culture and its change will rely on integrity; that is, the integrity of both the management and the employees in doing what they say they are going to do to maintain or improve a safety culture. Safety integrity is safety reliability. It reflects honesty in the drive to improve safety attitudes, beliefs, and norms and to create a safe work area.

Employees are generally skeptical of change, and more so of safety system change. The initial reaction will be, "Oh, but we've tried that before and it didn't work." Or, "I wonder how long this new safety fad will last." Once committed to safety improvements, management will be tested as to its capacity to maintain the drive and carry out the actions required by the demands of a structured safety system. If safety reports are not acted on within a reasonable amount of time, employees will start to question management's integrity.

ESTABLISHING AUTHORITY, RESPONSIBILITY, AND ACCOUNTABILITY

The culture change process starts at the top, is supported by the top, and is led by the top management. The success or failure of the safety culture change process falls directly on the shoulders of the management team. The logical place to begin the process is therefore by clearly defining each manager's level of safety authority, safety responsibility, and safety accountability. This is where positive safety leadership begins—with each manager being allocated safety authority, responsibility, and accountability in his area of responsibility. Once this has been established, the same process is carried out at the employee level.

DECLARATION OF SAFETY AMNESTY

Safety culture change cannot develop in a culture of finger pointing and blame fixing. Traditional safety management operates in this adversarial atmosphere, which is an “us” and “them” situation, with neither party winning when it comes to safety. Employees blame managers and managers blame employees. Safety amnesty must be declared and maintained for safety culture shift to take place.

A TRUST FORUM BETWEEN EMPLOYEES AND MANAGEMENT

An agreed truce and consequent trust must be established between management and employees. Managers must understand and trust employees in safety matters, and employees must be able to trust management, especially when it comes to the safety amnesty declared.

EMPLOYEE EMPOWERMENT IN SAFETY

Employees should be empowered to take part in safety decisions and to participate in the safety management system. Part of this is the establishment of employee authority, safety responsibility, and accountability for all levels. One of the best methods for employee empowerment is a facilitated workshop where management is encouraged to talk to the employees. This should be held in a “safe” space. The facilitator asks employees to list the things that could be done to improve safety at the plant, and what hampers safety in the workplace. Once a list is compiled, the attendees are asked to list what actions are needed to rectify the identified stumbling blocks and also to assign responsibility for those actions. Once the critical few hazards have been isolated, commitments are made to take action to rectify either the behaviors or conditions to eliminate the listed potential accidents. It is simply a matter of “the employees tell us how we can improve safety.”

SAFETY MATTERS RECEIVE ATTENTION

One of the attributes of a positive safety culture is when safety items receive prompt attention. High-risk practices and acts that are reported should receive attention, and remedial measures should be forthcoming. Reports of near-miss incidents should be recorded, tracked, and feedback given to everyone, not only the reporter. A system of risk ranking is useful in allocating resources and priorities to safety action items. If not ranked, all safety items will be considered as priority, and with all items being the priority, none will be handled in a timely manner.

DEVELOPMENT OF EMPLOYEES AND UNIONS

Initial modern safety management training of employees and union members in line with the training given to management should take place so everyone is on the same page. This training can become a part of continuing employee development.

ONGOING IMPROVEMENT

Building a safety culture has a beginning but no end. It is a continual process that evolves and continues as part of the company's activities. As processes or techniques of mining and manufacturing change, the safety system must adapt accordingly. Staff turnover means that safety orientation training is ongoing, and as new risks arise from changes within the industry, the safety system must be modified and changed to keep abreast with these changes.

If safety and health is integrated into every part of the organization then it becomes part of the continuous improvement process. This means that resources and time is set aside to ensure that the organization can identify the weaknesses and develop strategy to resolve and strengthen safety performance. (Ardern, 2012, p. 2)

CONSTANT MONITORING OF PROGRESS

Another key attribute of a positive safety culture is the ongoing monitoring and measuring of the progress of the safety checks and balances in place. What gets measured gets done, and in safety management the system must constantly be measured to ensure that no weaknesses in the system develop. Failures in the system invariably result in accidental losses occurring, and ongoing monitoring will help prevent this.

Internal safety system audits should take place every 6 months by a trained team of internal accredited auditors. The audit is not merely a safety inspection. A safety audit provides the means for a systematic analysis of each element of a loss prevention program to determine the extent and quality of the controls. It is a critical examination of all, or part, of a total safety operating system, and it is a management tool that measures the overall operating effectiveness of a company's safety and health program.

Successfully managing the risk of accidents and injuries for many organizations means going beyond legal compliance. Safety management system audits are used by leading organizations worldwide to benchmark their safety management system against best-practice processes.

An audit objectively, and in detail, evaluates an organization's occupational health and safety management system, identifying areas of strength and weakness, and supports a structured continuous improvement approach going forward. (McKinnon, 2012a, p. 89)

SAFETY STANDARDS SET AND MAINTAINED

A structured safety and health management system needs to be driven by written standards. These standards are the safety system elements spelled out in detail, listing what must be done by whom and how often. They are the safety system's guidelines, policies, procedures, and norms, and without them any safety system will fail. They are required and prescribed levels of safety excellence.

Standards in safety are referred to as measurable management performances. Standards are set for the level of work to be done to maintain a safe and healthy environment free from actual and potential accidental loss. Standards are established in writing for all the health and safety management system elements.

Without standards the management program has no direction nor are safety expectations established. (If you don't know where you're going, any road will take you there.) (McKinnon, 2012a, p. 47)

THE SAFETY TEAM

A positive safety culture needs the guidance of a strong and dynamic safety team. They are the catalysts in the safety culture process, and their inputs can either make or break a safety culture. In many instances the safety team is not used correctly in promoting safety. The team should consist of qualified and experienced individuals whose main function is to guide, educate, train, and motivate all levels of management, workers, and unions in the techniques of accident and disease prevention and to advise on and coordinate the safety system (GETMAC). This should be a staff function and not a line function. All employees have some safety responsibility, but management—senior and line—has ultimate safety authority, and therefore is ultimately accountable. The safety department cannot, and should not, be held accountable for the safety performance of an organization. This has been said time and again, but invariably the safety department is held accountable for safety, which is wrong.

THE WORKPLACE

The most prominent indicator of a positive safety culture is the physical condition and appearance of the workplace. If the systems are not working, the most obvious indicator will be the condition of the work areas. The system standards should call for an immaculate workplace free from physical hazards and hygiene threats. Few organizations manage this, as maintaining a *best-in-class* work environment is the end result of a strong, well-developed safety management system. Bearing in mind that the cleanliness of the workplace will influence the behavior of the employees, it should be kept up to the requirements of the standards at all times.

Attitudes, both personal and organizational, affect the development of a safety culture in a workplace. The environment in which people work and the systems and processes in an organization also influence the safety culture. Therefore, each organization needs to consider all of these aspects in developing and nurturing a safety culture that suits the organization and the individuals within it. (Ardern, 2012, p. 1)

Housekeeping is a clear indicator of safety culture. The level of housekeeping, or business order (a place for everything and everything in its place, always), clearly reflects how well the internal safety systems are working.

Another immediate safety culture gauge is the safety notice board. Are safety notices, posters, and other information on the notice board dirty, dog-eared, yellowed, and tattered? This shows that they have not received attention for a long time and is an indicator of poor attention to safety information. If they are neat and tidy, updated, and neatly arranged on the board, this means they are kept current and indicates that there is awareness concerning safety information. Accumulation of dust on workshop shelves and on the tops of cabinets could indicate a potential respiratory risk. Why is dust present in the work area? Are damping or extraction systems functioning correctly? Are employees exposed to potential risks?

SAFETY COMMUNICATION SYSTEMS

The safety system must have procedures for two-way communication between managers and employees. As will be discussed, committees are one form of a structured communication system. A system whereby risks in the workplace can be reported is also vital. This may have to be an anonymous system, as even though a culture may be in transition, the fear factor may still exist for many years.

There must be a quick, easy, and effective way for employees to communicate safety concerns, high-risk conditions and acts, and high potential near-miss incidents to the line management without them being worried about repercussions.

Good communication systems can include:

- Formal safety committees
- Near-miss incident reporting systems
- Safety suggestion schemes
- Health and safety representatives' monthly reports
- Internal system audit closeout meetings
- The safety newsletter
- Company safety website
- Safety training
- Safety orientation
- Employees' safety handbook

BUILDING BLOCKS OF A GOOD SAFETY CULTURE

In conclusion, some of the building blocks of a sound safety culture could include:

- Greater than average management commitment and involvement in the safety system and organization safety issues
- Management being more visible in the workplace
- A more humanistic approach in dealing with employees, stressing frequent positive contacts and interactions
- Better employee recruitment and selection procedures
- Dynamic and meaningful safety training program
- More frequent use of lead employees instead of supervisors to train employees
- Participation of safety representatives

- Better housekeeping and general plant cleanliness
- Better plant environmental qualities, such as less noise and heat, and better ventilation and lighting
- Greater availability and use of personal protective equipment
- Lower turnover and absenteeism among a more stable workforce

9 Safety Management Systems

SAFETY MANAGEMENT SYSTEMS

To guide management in controlling areas of potential loss and to set standards, there are existing safety and health management systems (SMS) that provide excellent system frameworks. These are sometimes referred to as structured safety programs, but the preferable term is *safety system*, as they do follow a system's approach to loss prevention. These systems prescribe certain elements under certain headings and give details of what aspects of an SMS should be instituted as a foundation for culture change.

A safety and health management system is a formalized approach to health and safety management through use of a framework that aids the identification and control of safety and health risks. Through routine monitoring, an organization checks compliance against its own documented SMS, as well as legislative and regulatory compliance. A well-designed and operated SMS reduces accident potential and improves the overall management processes of an organization.

RISK BASED

The SMS must be a risk-based system. That means it must be aligned to the risks arising in the workplace. Emphasis on certain SMS elements will be different according to the hazards associated with the work and the processes used. There is no SMS that is ideal for all mines, industries, and other workplaces; therefore they should be seen as a framework on which to build a risk-specific system for the industry. The main aim of the system is to reduce risks; therefore the system must be aligned to those risks.

MANAGEMENT LED

The key factor in safety and safety culture change is management leadership. The SMS must be initiated and supported by senior management as well as line and frontline management. Dr. Mark A. Friend (1997) says: "Only members of the management team can create or change the environment. (And it is, after all, their job to do so.)" (p. 34).

Safety systems that originate and are maintained in the safety department will have little effect on the organization. It is estimated that about 15% of a company's problems can be controlled by employees, but 85% can be controlled by management. This means that most safety problems are management problems. Management will

also realize that if they can manage the intricate and difficult concept of safety, then they will be able to deal with other aspects of management more easily, as managing safety enables them to be more effective.

AUDIT BASED

What gets measured usually gets done. Safety is an intangible concept and is traditionally measured after the fact—once a loss has occurred. The SMS must be an audit-driven system that calls for ongoing measurement against the standards and quantification of the results. As Scottish scientist Lord Kelvin (1883) said, “When you can measure what you are speaking about, and express it in numbers, you know something about it.”

A safety system converts safety intended actions into proactive activities and assigns responsibility and accountability for those actions—very similar to what a manager does with his subordinates. Each activity, usually included in the safety system elements, can then be scored on a 1 to 5 scale as to whether it has been achieved or not. The entire system can then be quantified by the score allocated. The safety system’s effectiveness has been measured. The elements that scored less than full points are highlighted as areas that need improvement.

Geller (2012) agrees that there should be more measurable items in safety rather than just injuries:

Instead, keep score on the various proactive things individuals and groups do for safety. For example, monitor the numbers of near hits, property damage incidents, and injuries reported. Track the number of corrective actions implemented and evaluated, the number of environmental and behavioral audits conducted, the number of environmental hazards eliminated, the number of safety suggestions and safety work orders submitted, and so on. Graph and post the percentage of individuals who participate in various safety-related activities, as well as the percentage of safe work environments and behaviors observed during systematic audits. Now you have an accountability system that can facilitate participation. (p. 12)

INTERNATIONALLY ACCEPTED RISK-BASED SAFETY SYSTEMS

There are numerous prominent international safety systems currently in use throughout the world. They include, inter alia:

- National Occupational Safety Association (NOSA) Five-Star Safety System
- Safety Projects International (SPI) Five-Star Health and Safety Management System
- British Safety Council’s Five-Star Health and Safety Audit System
- International Loss Control Institute’s International Safety Rating System (ISRS)
- International Organization for Standardization (ISO) (environment, quality, etc.)
- British Standards Institute (BSI) Occupational Health and Safety Assessment Series (OHSAS)

- South African National Standards (SANS) OSHAS 18001:2011
- OSHA Voluntary Protection Program (VPP)

NOSA AND SPI FIVE-STAR SAFETY AND HEALTH MANAGEMENT SYSTEM

The National Occupational Safety Association (NOSA) of South Africa developed the NOSA Five-Star System in the early 1970s. It was based on 25 years of consulting experience by NOSA field staff and 150,000 safety surveys that had been conducted across a wide range of industries and mines.

SECTIONS

The NOSA Five-Star Safety System consists of five main sections:

1. Premises and housekeeping
2. Mechanical, electrical, and personal safeguarding
3. Fire protection and prevention
4. Incident (accident) recording and investigation
5. Health and safety organization

ELEMENTS

Falling under these five main sections are 73 safety system (control) elements, which constitute the basis of a safety and health management system. The elements contain minimum standards for compliance to each element as well as minimum standard details, which break the element into further achievable and measurable objectives.

AUDIT SYSTEM

The NOSA Five-Star Safety System is an auditable safety system. Each minimum standard detail has a point weighting, and the entire system totaled 2,000 points in one of the original versions. Control of these critical elements must have been in operation for at least 6 months before full recognition can be given during the auditing process. Due to the score weighting of various elements, differing from industry to industry, the scoring was later changed to a 1 to 5 score for each minimum standard, thus rating every minimum standard of the system with equal importance.

STAR GRADING

One of the objectives of the NOSA system was to present an ongoing challenge and provide encouragement and reward. The audit score is measured against the achievement of prescribed minimum standards and is converted to a percentage. In

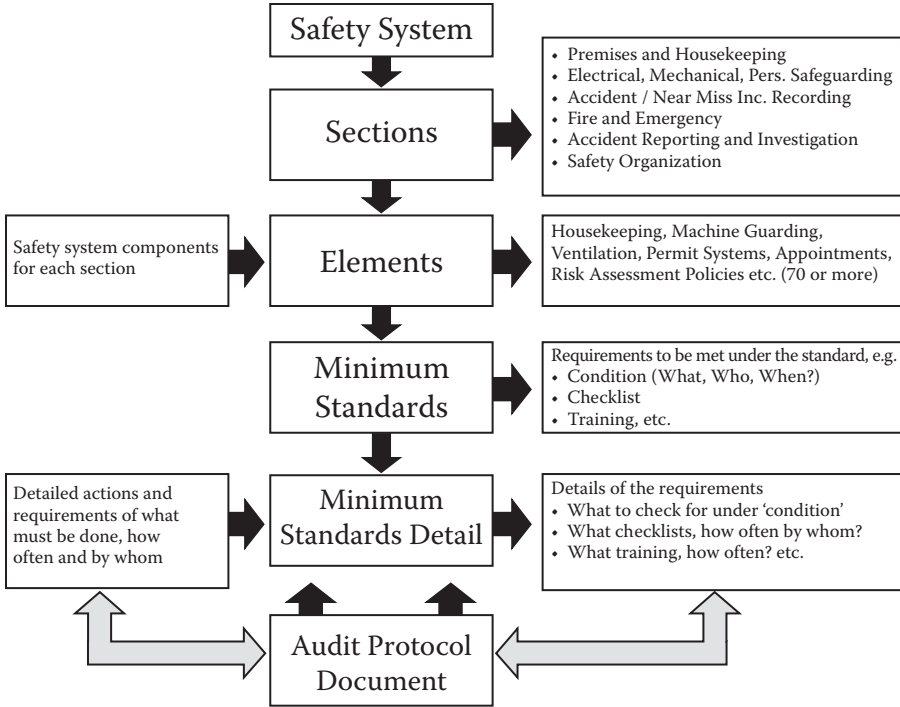


FIGURE 9.1 Components of a safety system.

conjunction with the 12-monthly disabling injury incidence rate (DIIR), a star rating is given ranging from 40% for a one-star rating to 61% for a three-star rating. A rating of 91% or more culminates in a five-star rating, provided the DIIR percentage is less than 1% for the 12 preceding months.

Figure 9.1 shows the SMS sections, the elements, the minimum standards, and the minimum standards detail, as well as the point allocation for those particular standards. To ensure conformity of measurement, an audit book incorporates an auditor’s guide indicating what to look for during the physical inspection, documentation to verify the measurement, and questions to ask to ascertain conformance to the standard. Figure 9.2 is an overview of a structured SMS.

BRITISH SAFETY COUNCIL FIVE-STAR HEALTH AND SAFETY AUDIT SYSTEM

The British Safety Council (2010) describes the process:

Using the latest benchmarking methods and tools, our team of experienced auditors will undertake a comprehensive and objective assessment of organizational arrangements, evaluating the safety management system against the audit criteria which incorporates best practice technique. The audit focuses on five key areas of a safety management system using a risk-based rating system to evaluate each element.

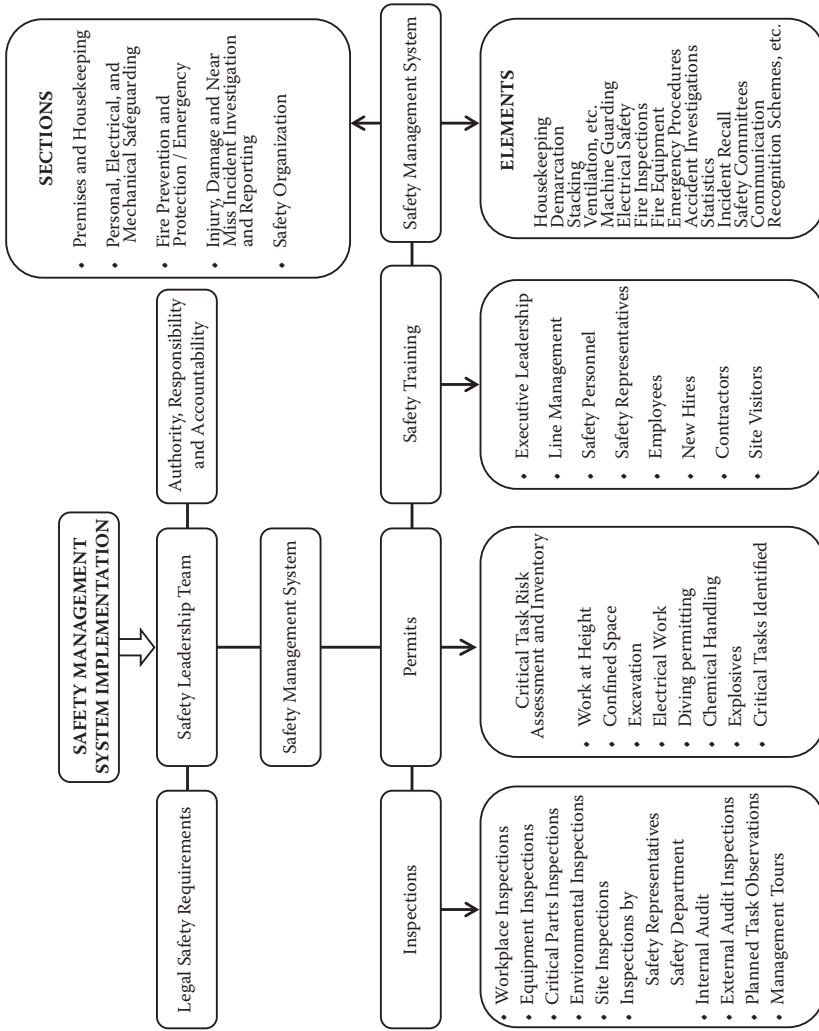


FIGURE 9.2 An overview of a structured safety management system.

KEY AREAS

The British Safety Council's audit protocol is applicable to the five sections that make up the five-star audit. Key areas covered by the assessment are:

1. Safety organization
2. Management control systems
3. Emergency control systems
4. Management of accident, incident, near-miss, and damage reporting
5. Workplace implementation

EVALUATION AND REPORTING

Based on the findings of the audit, a detailed report is produced within 28 days of the visit, summarizing the outcomes of the evaluation. The audit report provides a clear and quantifiable benchmark of your performance. It recognizes areas of good practice and includes "action planning" tables for implementation of subsequent recommendations. The quantifiable rating system makes it easy to chart and monitor continual improvement towards best practice. (British Safety Council, 2012)

INTERNATIONAL LOSS CONTROL INSTITUTE INTERNATIONAL SAFETY RATING SYSTEM (ISRS)

Another widely used system, launched in the 1970s, which sets standards of measurement, is the International Loss Control Institute's International Safety Rating System (ISRS). This system has set standards of conformance as well as standards of accountability for safety work. It incorporates physical inspection guidelines and precise instructions to accredited auditors on how to allocate scores. In one version of the ISRS there are 20 main element headings, each one composing a number of elements. The total score for this version is 13,000 points.

BRITISH STANDARDS INSTITUTE OCCUPATIONAL HEALTH AND SAFETY ASSESSMENT SERIES SYSTEM (BSI-OHSAS 18001)

British Standards Institute (BSI) OHSAS 18001 is the Occupational Health and Safety Assessment Series specification. Implementation demonstrates an organization's commitment to protection of health and safety in the workplace. It comprises two parts, 18001 and 18002, and embraces a number of other publications.

OHSAS 18001 was created via a concerted effort from a number of the world's leading national standards bodies, certification bodies, and specialist consultancies. A main driver for this was to try to remove confusion in the workplace from the proliferation of certifiable occupational health and safety specifications.

Broadly, the system provides a framework for organizations to identify elements of their business that present risks from an occupational health, safety, or environ-

mental perspective, and to identify and document a program (system) to manage, mitigate, or eliminate those risks.

The OHSAS type system was largely developed from the safety rating systems mentioned. OHSAS 18001 is compatible with ISO 14000:1997 (environmental) and ISO 9001:2000 (quality) management system standards. BSI-OHSAS 18001 was specifically developed with requirements of the ISO 9001, *Quality Management Systems*, and ISO 14001, *Environmental Management Systems*, in mind, allowing for ease of integration of management systems.

KEY PRINCIPLES

- Leadership and management—clear commitment
- Setting objectives—continual improvement
- Planning—hazard identification, risk assessment, and risk control
- Competence—training and awareness
- Consultation and communication—all stakeholders
- Structure and responsibility—clear lines and definitions
- SMS—audit and review to monitor effectiveness

SANS OHSAS 18001:2011

This South African Occupational Health and Safety Assessment Series (OHSAS) standard was approved by National Committee SABS TC 177, *Occupational Health and Safety Management Systems*, in accordance with procedures of the SABS Standards Division in compliance with international agreements. This South African National Standards (SANS) document was published in April 2011. It is the same as the British Standards Institute's (BSI) version and has been adopted with permission.

The OHSAS standards covering occupational health and safety management are intended to provide organizations with the elements of an effective SMS that can be integrated with other management requirements and help organizations achieve safety and economic objectives.

SANS OHSAS 18002:2011

This standard, entitled *Occupational Health and Safety Management Systems—Guidelines for the Implementation of OHSAS 18001:2007*, is an ideal guideline for the implementation of an SMS that will meet world's best practice.

The objective of the standard is:

This Occupational Health and Safety Assessment Series (OHSAS) guideline, and OHSAS 18001:2007, *Occupational health and safety management systems—Requirements*, have been developed in response to customer demand for a recognizable occupational health and safety management system standard against which their management systems can be assessed and certified, and for guidance on the implementation of such a standard. (British Standards Institute, BSI-OHSAS 18002:2008, p. 3)

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) VOLUNTARY PROTECTION PROGRAM (VPP)

The VPP recognize employers and workers in the private industry and federal agencies who have implemented effective safety and health management systems and maintain injury and illness rates below national Bureau of Labor Statistics averages for their respective industries. In VPP, management, labor, and OSHA work cooperatively and proactively to prevent fatalities, injuries, and illnesses through a system focused on: hazard prevention and control; worksite analysis; training; and management commitment and worker involvement. (OSHA, 2012)

VPP EMPLOYEE INVOLVEMENT

Experience has shown that employee involvement is an essential component of any effective safety and health management system. Any OSHA Strategic Partnership (OSP) agreement that requires implementation of a safety and health management system must have partnering employers commit to include employee involvement in their management system. To ensure the quality of involvement, appropriate safety and health training may be necessary prior to involving employees in many safety and health activities. Employee involvement may include, but is not limited to:

- Conducting worksite inspections, safety and health audits, job hazard analyses, and other types of hazard identification.
- Developing and using a system for reporting hazards.
- Developing and revising the worksite's safety and health rules and safe work practices.
- Participating on workplace teams charged with identifying root causes of accidents, incidents, or breakdowns.
- Implementing controls to eliminate or reduce hazard exposure.
- Assisting in job hazard analyses.
- Making presentations at safety and health meetings.
- Participating on safety and health committees, joint labor-management committees, and other advisory or specific purpose committees, if otherwise lawful and appropriate.
- Delivering safety and health training to current and newly hired employees.
- Participating in safety and health program reviews. (OSHA, 2012)

TYPES OF PERFORMANCE MEASURED

Performance measures are quantitative and qualitative and a mandatory quantitative measure for all OSPs is that the workplace injury and illness rates evaluation criteria is recommended. They also list some of the measurable criteria under the OSP agreement:

- Number of job safety analyses conducted
- Exposure assessment data
- Number of employee complaints
- Breadth of training delivered
- Level of employee knowledge before, immediately after, and 6 months after training
- Number of worksite audits

- Number of hazards identified and abated
- Number of root cause analyses conducted
- Improved employee productivity
- Increased employee involvement
- Number of safe actions demonstrated in the workplace
- Enhanced communication between management and employees (OSHA, 2012)

These pioneering auditing systems are both systematic and thorough in their approach and accurately quantify the work being done to control loss while giving recognition for the safety effort.

CONCLUSION

Years ago, safety pioneers saw the need for structured SMS that were risk based, management led, and audit driven. Based on sound management principles, they realized that safety must be measured if it was to be improved. This measurement had to gauge effort rather than experience in the form of injury rates alone. Modern systems do just that and form a sound basis for safety benchmarking internationally.

Today, international standards are available that enable an organization to gauge its safety performance against world's best practice using the ISO type approach and standard, which sets objectives and guidelines for a measurable system. These international standards provide a recognizable occupational health and SMS standard against which management systems can be assessed and certified.

10 Steps toward Shifting the Workplace Safety Culture—Part 1

This chapter discusses the following aspects of safety culture change:

- Major decision
- Commitment
- Safety leadership team (SLT)
- Management training
- Declaration of safety amnesty (no-blame culture)
- A safe space
- Credibility of culture change
- Development of employees and unions
- Sharing of knowledge
- Employee empowerment in safety
- All on board

INTRODUCTION

The first step of the safety culture shift process is making the decision to align the organization with best in class as far as safety and health management is concerned. This decision will commit the company and its management, employees, and unions to a process that is ongoing, and which will place excessive demands on many people, especially those who may resist the change. Once the decision has been made, a leading body in the form of an executive safety committee should be formed to head up the process, and managers at all levels should receive training in modern safety management techniques. The most difficult step is the declaration of safety amnesty, which will create a safety space for changes to occur without repercussion.

The next phase of the shift process will involve listening to employees as far as safety is concerned, and then focusing on an employee development action plan that will help empower them in safety issues. Of vital importance is the assignment of safety authority, responsibility, and accountability at all levels throughout the organization.

MAJOR DECISION

The first step in changing the workplace safety culture is the high-level decision to change the way the organization views safety. This decision should originate either in the boardroom or at the executive management level. The decision cannot be made at lower levels within the company, as it is a decision that will change the way the company does business and will impact the workforce and the entire organization. This decision will commit the workplace not only to legal compliance with safety and health regulations, but also to the lengthy and difficult process of changing the existing safety culture and replacing it with one that is proactive, progressive, and which becomes a part of the organization's personality.

Safety culture change is not a quick fix or a silver bullet to solve all safety problems. It is a concerted, ongoing, serious drive to move the safety views, values, and practices of an organization and its employees to a higher level of safety awareness and keep them there. The decision cannot be taken lightly, and it must be a corporate decision, as it will involve implementing change that will require resources and management support. Once the decision has been made, the change process can begin. This decision should be announced and communicated via the firm's normal communication channels so that the open safety communication channels required for this process are already set into motion.

START AT THE TOP

One of the principles of culture change, discussed by John R. Childress (2009), is pertinent to safety culture change, and that is to start at the top.

Spending the appropriate amount of time getting the senior executives to buy into the new culture is absolutely critical. And they won't get it through a speech or series of PowerPoint presentations. They need to engage in a group or team experience where they have to live the new culture and understand what it means to them, personally and professionally. They must become converts, not just spokesmen. And be prepared for the fact that some won't make it, either by their choice or yours. (p. 4)

COMMITMENT

Existing research is clear that leadership must be one of the first priorities for the establishment of a positive safety culture. (HSE, 2005, p. 3)

LONG-TERM COMMITMENT FROM THE LEADERSHIP

The next step in the safety culture change journey is to obtain agreement and commitment from the management team. They should agree that safety improvements are needed and also commit to being a part of the change and to facilitate change in their areas of responsibility. They should understand that safety culture change can only begin and be facilitated through their leadership, as they have the authority to do so.

From the literature it emerged that management was the key influence of an organization's safety culture. A review of the safety climate literature revealed that employee perceptions of management's attitudes and behaviors towards safety, production and issues such as planning, discipline, etc. was the most useful measurement of an organization's safety climate. (HSE, 2002, summary page)

Many managers will immediately point to the safety department and say that it's their job to manage safety and safety change. It needs to be spelled out very clearly at the beginning of the change intervention that safety culture change must start and be driven at the senior management level or else it will fail. The safety department will play its part, as discussed in Chapter 14.

By definition, a safety culture has to be experienced company-wide. The commitment must exist at all levels, including workers, supervisors and managers. Of course, buy-in at the upper levels is of critical importance. After all, if the rest of the management team's agenda conflicts with this goal—such as an agenda that stresses maximizing production and output without regard for employees' safety and welfare—then there's no way the culture will be created. (Higbee, 2007)

Some of the biggest initial challenges of the process will be resistance and reluctance from managers to take on this extra burden of safety. Safety paradigms taught them to believe that safety was the safety department's job. Now they have to carry the burden. Once authorities and accountabilities for safety and health have been written and incorporated into managers' job descriptions, the amount of resistance will wane.

We now understand clearly that one of the most important contributors to sustained—and improved—safety performance is leadership and the impact that leaders make by being available (visible and felt) in the workplace. Being accessible to employees while they are carrying out their day-to-day duties can make a very positive impact on the way employees view their leaders and can positively influence their behavior and performance. (Fourie, 2012)

THE SAFETY AND HEALTH POLICY STATEMENT DECLARATION

The most important step in the culture change process is the declaration of management's commitment to safety by declaring, issuing, and publicizing the company safety and health policy statement. As Jim Montanaro (2007) put it:

Make safety a corporate mission: That corporate mission statement that you see hanging in a company's reception area and boardroom generally includes a nice statement about satisfying the customer by providing a quality product. That's all well and good. But if there isn't also a reference to the company's commitment to maintain a safe and healthy work environment, then odds are you're looking at a company that doesn't have a true safety culture.

The safety policy statement is a substitute for repetitive management decisions and is viewed as mandatory. This is sometimes referred to as the occupational health and safety policy. This is the guiding document in a safety system

and perhaps the most important in implementing a change in safety culture. The concept safety should appear in the vision and mission statement of the organization. The safety policy statement is the declaration of the company's safety intent, commitment, and responsibility to constantly promote a safe and healthy work environment.

The safety policy statement must be practical and achievable. Tangible objectives should be set by the policy. The policy should also list practical ongoing steps that will ensure compliance, and it should be written in such a way that it is understood by all. Ongoing briefing sessions should be in operation to ensure that everyone understands the gist of the policy, which should be featured on the company website as well as in the safety handbook, etc.

The safety policy can be linked with other policy documents of the organization and should be consistent with the organization's overall business policies and with its policies for other management disciplines, such as quality or environmental management.

Considerations

When drafting a policy the organization should consider the nature of the risks arising from the business processes of the organization and neither over- nor understate them. The company mission, vision, core values, and beliefs must be considered, and the policy should be integrated with existing policies to ensure there is no conflict. Legal requirements should be considered when drafting the policy, and the policy should include the need for continual safety improvement in safety management and the prevention of injuries and ill health. Compliance to other safety and health requirements should also be included. A reference to the achievement of set safety objectives should also form part of the policy.

Policy Requirements

The safety policy statement (policy) must be appropriate to the nature and scale of the organization's safety and health risks and should include a commitment to the prevention of injury and ill health and continual improvement in safety performance management. The policy should include a commitment to comply with applicable legal requirements and with other requirements to which the organization subscribes relating to its safety hazards. It should cater to the needs of the employees, contractors, and visitors working under the control of the organization. The policy should provide the framework for setting and reviewing safety and health objectives and should be documented, implemented, and maintained.

Signed

The chief executive officer and the leadership team, where applicable, should sign the policy to show visible commitment to this safety declaration. If it is a joint union management policy, the union leadership should also sign the policy.

Communicated

The policy should be communicated to all persons working under the control of the organization with the intent that they are made aware of their individual safety and

health obligations. It should be available to interested parties, including contractors, vendors, and site visitors or tours.

The communication of the policy should assist in demonstrating the commitment of top management and the organization to safety and health. It will increase awareness of the commitments made in the policy statement by explaining why the safety system is established and maintained, and also guide individuals to understanding their safety and health responsibilities and accountabilities.

Posted

The safety policy statement should be posted at prominent positions throughout the organization. To give credibility to safety the policy should preferably be attractively printed and suitably framed and displayed. The display positions must be carefully selected, and employees should constantly be briefed and reminded of the policy. This policy should be extensively publicized and displayed on all notice boards, on the company website, in the employee safety handbook, and in every prominent position throughout the workplace. When asked to tender for contracts, the tendering organization often requires the responding company to present its safety case, which includes a copy of the firm's safety and health policy.

Requirements of a Health and Safety Policy

A Health and Safety Policy Statement should meet at least the following requirements:

- It should contain a statement concerning the reduction of injuries and health to employees
- It should mention compliance to applicable safety and health laws
- It must be signed by the executive officer
- It must include reference to a process of continued improvement in safety
- It should be communicated to all employees
- It must be made available to interested parties
- It must be reviewed periodically
- It should be prominently displayed

Examples of safety policy statements could include commitment to:

- Provide and maintain a safe and neat working environment for all employees
- Follow an agreed-upon procedure to identify, report, record, and rectify hazards
- Ensure compliance along the guidelines of the safety management system
- Provide safety training at all levels
- Encourage employees to develop a positive safety culture
- Measure, by means of a formal evaluation system, the extent to which safety objectives have been met

Not all the safety policies meet the criteria of naming every aspect of safety, such as disease prevention, environmental control, etc. It is generally accepted that when the organizations refer to safety, they imply that the word safety includes all aspects

of safety such as accident, injury prevention or property damage, etc., and do not necessarily list them individually.

A safety policy statement is only as good as the employees' knowledge thereof. Safety policies should be short, to the point, and most important; the employees must be aware of the safety policy. The safety policy statement should be revised regularly to ensure that it is kept updated and current with organizational changes.

Including the safety policy in the organization's annual report also indicates to the shareholders and directors the importance that the company places on its most vital assets—men, machinery, materials, and the environment.

Summary

A clearly defined safety and health policy is a guiding document for safety culture change. It is a written commitment that the organization recognizes safety as a key item in its business and sets the scene for safety changes and improvements. The Health and Safety Executive (2005) of Britain agrees that it is a good starting place for a positive safety culture:

Whilst it is clear that a good set of policies, statements and briefings from management is a good first step to a successful safety culture, the investigation into the Clapham Junction disaster emphasized that effective leadership is more than just words. (p. 9)

SAFETY LEADERSHIP TEAM (SLT)

SAFETY CULTURE CHANGE

John R. Childress (2009) explains culture change:

The process must be led by the senior executives, not the HR or training staff and especially not outside consultants. If you don't believe you or your team have the commitment nor passion to lead this process (conduct the culture change workshops, coach people on the new culture, visit lower level staff meetings for "fireside chats," have your own culture change blogs on your intranet, and so on) then don't even start the process. (p. 5)

EXECUTIVE SAFETY COMMITTEE

The safety culture change process needs to be driven by a team of executive managers who form the safety leadership team (SLT). This is basically the executive safety committee, and their main role is to meet monthly to discuss progress, approve safety standards, recommend changes, support the recognition system, and monitor overall safety culture change implementation progress. The safety manager or director is the facilitator of this group and is responsible for arranging the meetings and meeting venues, preparing and sending out the agenda, and producing the minutes.

The Ladbroke Grove Inquiry report recommends that a strategic safety management leadership team be established within each company in the Rail Industry [HSC, 2003]. This should be led by the Chief Executive of each organisation, with support from

safety professionals, and should consider the strategic management process for safety. This could be achieved by holding regular meetings (at least bi-monthly) to discuss health and safety issues. Outcomes should be disseminated throughout the organisation. Aims should be set to monitor performance, as well as assessing and resourcing the needs of the organisation to ensure that long-term objectives are met. ...

Organisations should have effective systems in place for the management and co-ordination of safety. This should be led by a strategic safety leadership team. (HSE, 2005, p. 19)

The safety manager plays a very important role in the SLT, as he reports to it on the status of the safety system and also seeks approval for new standards to be approved and other activities pertinent to the implementation and maintenance of the system.

Example of a Safety System Standard Defining the Safety Committee Structure

Objective

To establish and sustain a system of safety and health committees (safety committees) throughout the company to facilitate the management of safety and health issues and to provide a forum for safety communication, the company safety and health management system (company system) implementation, and decision making.

These committees can recommend policy changes, but they are not accountable for the safety and health policies and standards of the organization. The committees do not replace the single-point accountabilities for the company safety system, which remains with line management.

First Level

- The SLT shall be the governing safety committee at the company and shall be chaired by the director, and members shall be the deputy director and all associate directors.
- The safety department will be an invited member and will provide input, advice, and secretarial services to the SLT.
- The SLT will meet monthly or as determined by the director.

Second Level

- Each facility (division or section) at the company will have a second-level safety committee.
- These meetings take place on a monthly basis and will be chaired by a member of the SLT.
- These meetings will be scheduled in advance to ensure attendance is given priority and will be arranged by the safety coordinators.
- Safety coordinators will provide all necessary secretarial support to the safety committee and act as committee secretary, where no other support exists.
- The safety committee will typically consist of:
 - Chairperson—a member of the SLT
 - Secretary—safety coordinator

- Union representatives (where applicable)
- Safety and health representatives
- Members—members nominated

Third Level

- The third-level safety committee will be the engineering department's weekly safety meeting, chaired by the site manager or, in his absence, his deputy.
- The engineering administrative specialist or equivalent will provide all necessary secretarial support to the committee(s) and act as committee secretary.
- The committee will typically consist of:
 - Chairperson—site manager or deputy
 - Secretary
 - Safety coordinator
 - Nominated safety and health representatives
 - Any member of the engineering department
 - Other company employees who may want to attend the meeting

General Duties and Functions of Safety Committees

First Level

- Provide a forum for discussions on safety and health matters
- Approve company safety system standards
- Facilitate company safety system audits
- Monitor progress of remedial measures taken on accident investigations
- Promote a safety suggestion scheme (if applicable)
- Provide a forum for recognizing outstanding achievements by individuals

Second and Third Levels

- Review/investigate departmental accidents, injuries, illnesses, and near-miss events
- Monitor outstanding near-miss incident/accident investigation reports
- Propose personnel to attend safety training courses
- Participate in the company safety system audits
- Implement the company system standards

Safety Committee Agenda

The following items should form part of the standing agenda:

- Opening and welcome
- Minutes of previous meeting
- Incident/accident recall
- Report of company-wide injuries, damage accidents, and near-miss incidents
- Report of site injuries, damage accidents, and near-miss incidents
- Outstanding actions from accident investigations
- Safety suggestions submitted

- Company safety system standards approved/implemented
- Other safety issues
- General

Leadership

The importance of the leadership team cannot be overemphasized if the organization truly wants to change its safety culture. Changing safety culture can be more difficult to change than organizational culture, so it is imperative to have a strong leading force to see the change through. Only management can bring about change to a safety culture. Employees play an important role, but they cannot initiate and authorize the major initiatives needed for successful safety. The safety leadership team members therefore are the main players in the culture change process.

MANAGEMENT TRAINING

One of the first steps in changing the safety culture within an organization is to change the safety culture of the leadership team by educating them in modern safety practices. Since safety is a management function, managers need to be exposed to safety management principles, safety fundamentals, and be taught a modern loss causation model that encompasses more than high-risk acts as accident triggers.

Figure 10.1 highlights the luck factor that determines the outcome of an undesired event, the important role that near-miss incidents play in loss prevention, and the importance of the accident root causes and their antecedents. This model will help managers look at the bigger picture of accidental loss—the causes, effects, and luck factors—and explains the importance of risk identification and mitigation in the safety process. Similar models on loss causation can be referred to as long as they focus on the bigger picture and do not indicate unsafe employee actions as the main accident causes.

Managers may be reluctant to attend any form of safety training, but it is essential if they are to facilitate safety culture change. Experience has shown that managers enjoy learning about safety, as few have ever been exposed to any form of safety education, yet they carry the responsibility and accountability of the safety and well-being of the employees that they manage. Once managers have been exposed to safety training they get more involved in safety and enjoy participating in safety activities.

SYLLABUS FOR EXECUTIVE MANAGERS TRAINING

A one-day safety training orientation course for managers should cover the following topics (at least):

- Defining safety, risk, accident, near miss, and loss
- Who is responsible for safety?
- Safety authority, responsibility, and accountability
- Loss causation theories

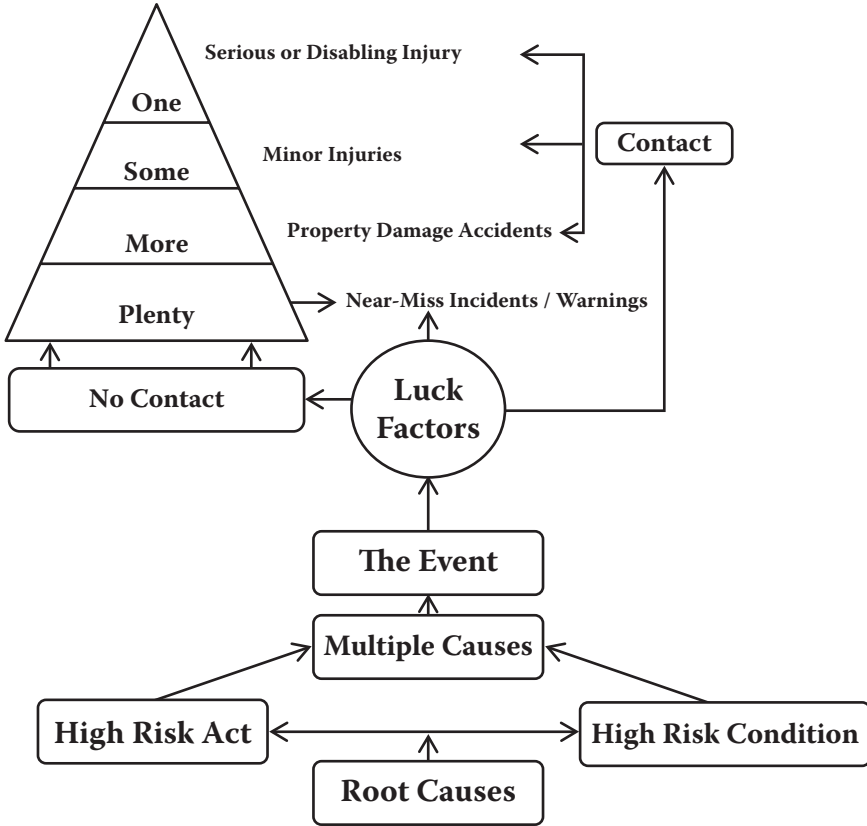


FIGURE 10.1 The accident ratio showing the luck factors.

- High-risk conditions
- High-risk acts
- The accident ratio
- Importance of near-miss incidents
- The phases of risk assessment
- Elements of a safety management system
- The safety and health policy statement (discussion)
- Legal obligations
- Role of management and the safety department

DECLARATION OF SAFETY AMNESTY (NO-BLAME CULTURE)

Safety culture change cannot develop in the culture of finger pointing and blame fixing. Traditional safety management operates in this adversarial atmosphere, which is an “us” and “them” situation with neither party gaining any success when it comes to safety. Employees blame managers and managers blame employees. Safety staff are seen as cops.

The biggest challenge to both leadership and employees is the declaration of safety amnesty, where employees feel free and confident to report and discuss safety issues no matter how sensitive they may be, without the fear of being victimized. Employees need to report near-miss incidents and other unsafe situations without repercussion so that these can be rectified. A mutual trust must be developed between management and employees, and joint communication safety committees are vital for this purpose.

Without safety amnesty no safety management system can be fully effective, and changing a safety culture will be almost impossible. Safety cultures can only be nurtured in a safe space.

The environment in which people work is blame free. Trust is an essential part of a good safety culture and often the most difficult hurdle to overcome in establishing a safety culture. Everyone in the organization is encouraged to realize that incidents are worth reporting and feels comfortable in correcting unsafe practice across, down and up the hierarchy. If this is the case, management actually knows what is going on and the workforce tell the truth, even if it is not what management may want to hear. Holding people at all levels accountable for safety means embracing bad news. (Ardern, 2012, p. 2)

Dr. Mark A. Friend (2012) also mentions creating a blame-free environment as a prerequisite for safety culture change:

Set up a “blame-free” culture when possible and appropriate. Employees should be willing and able to report safety problems they observe without fear of repercussion. Exceptions to this include situations where employees clearly violate rules or safety procedures. (personal communication)

A SAFE SPACE

One of the reasons for the rising fatality and injury rates worldwide is the gap between employee and management perception when it comes to safety. Managers think that employees are solely responsible for accidents, and employees blame management. It has become a finger-pointing scenario. There is a safety conflict between management and employees, and this conflict needs to be resolved before progress can be made. Traditional managers think that discipline is the immediate solution to safety infringements, and apply it liberally. Employees, in their own defense, cover up or try to hide injuries because of this punitive action, as they are fearful of being disciplined or losing their jobs.

Basing their actions on the theories of psychologists who specialize in safety that “behavior causes 96% of all accidents,” managers automatically point a finger at employees and believe they are absolved of any safety responsibility. This has to be changed if progress is to be made. My experience and that of other safety philosophers has shown that accidents are the result of many causes. Although behavior may be one of the many small blunders that contribute to an accident, it is not the only

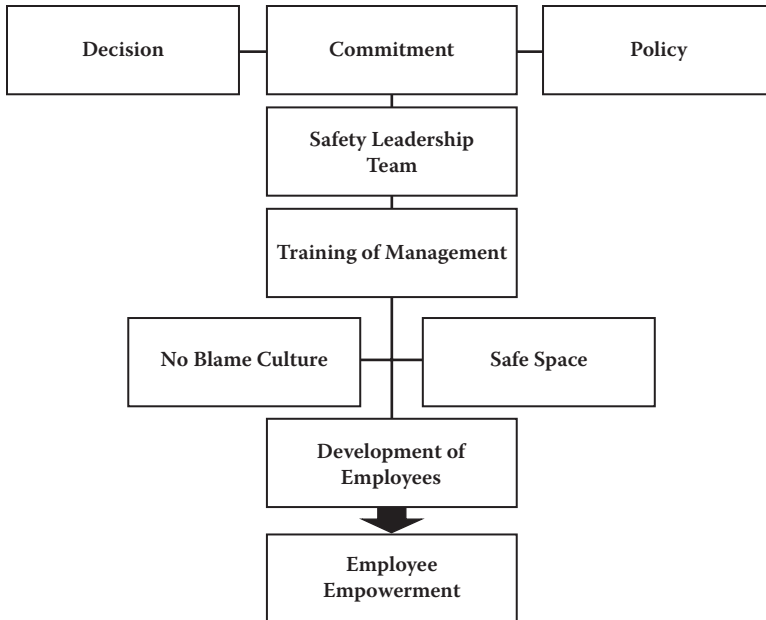


FIGURE 10.2 Creating a safe place and empowering employees.

cause. Once we investigate and find the root causes of accidents, we tend to open a can of worms, as often the injured employee was doing what he or she was instructed to do. In some cases he or she may have received conflicting instructions, or the equipment and tools provided were inadequate, and so on. We have to accept that accidents are caused by multiple causes, and management needs to ask, “What could we have done to prevent that accident?” It may be asked why the system has failed the man, rather than why the man has failed the system (Figure 10.2).

CREDIBILITY OF CULTURE CHANGE

When declaring a safe space within which to manage safety, management will again be tested to see if they maintain the integrity of the safe space or if they revert to traditional methods as soon as something goes wrong or an employee is injured. This is where the credibility of the safety culture change intention is put to the test. Managers will be champing at the bit to issue punitive discipline. Change will mean getting the facts of the event and fixing the root cause while letting the employee get off “scot-free.” Managers in general will resist this change and think that they have lost power and authority, but instead there will be a respect for their actions and a realization by the workforce that the leadership is sincere in their new approach to safety.

For safety culture improvements and change to be made, a safe space needs to be created. This is almost like declaring a truce and forming a common safe ground in which to manage safety change.

DEVELOPMENT OF EMPLOYEES AND UNIONS

Initial modern safety management training of employees in line with the training given to management should take place so that everyone is on the same page. This training can continue into a process of continuing employee development.

SHARING OF KNOWLEDGE

Information about the safety change process and safety objectives must be shared with everyone in the organization. The more people are informed about safety, the more they become involved. This is true, too, of the change process. All employees need to know what is happening and what progress is being made. They also need to be encouraged by positive feedback on safety achievements and highlights. Communication procedures should be internal as well as external and should encompass communication channels to other interested parties.

EMPLOYEE EMPOWERMENT IN SAFETY

Employees should be empowered to take part in safety decisions and to participate in the safety management system. Part of this would be the establishment of employee authority, safety responsibility, and accountability for all levels.

As previously discussed, one of the best methods for employee empowerment is a facilitated workshop, where management is encouraged to talk to the employees. This should be held in a safe space. The facilitator asks employees to list the things that could be done to improve safety at the plant, and what hampers safety. Once a list is compiled, the attendees are asked to list what actions are needed to rectify the identified stumbling blocks, and to assign responsibility for those actions. Once the critical few risks have been isolated, commitments are made to take action to rectify either the behaviors or conditions to eliminate the listed pitfalls. In this type of a workshop, the goal is to have “the employees tell us how we can improve safety.”

As Dr. Mark Friend (2012) notes, “Ask workers to help identify hazardous processes, equipment, materials, etc.; the hazards associated with each; and what needs to be done to eliminate or compensate for those hazards. Workers should be involved in every process” (personal communication).

LISTENING TO THE WORKFORCE

Despite all that has been written about the workers’ behavior being the basic cause of the majority of accidents, the worker is in reality the person with the most knowledge about the workplace, work activities, and workplace risks. The worker is the expert and may have many years of experience doing a particular job, so why not consult him or her about the risks of the job and how to make it safer? Perhaps we are so busy trying to “fix” the worker to prevent the accident that we have overlooked him or her as a source of safety information. A good policy is that if in doubt, ask the expert, and by speaking to the worker you will be speaking to the expert.

ALL ON BOARD

The safety culture change journey is a tough, long, and sometimes tedious one. Everyone involved with the organization must be on board or the change will not happen. This change in safety attitudes cannot occur at the worker level only. It must start with the leadership and cascade down to all echelons within the organization, and must involve contractors and temporary employees as well.

There should be a process that informs everyone in the organization of significant accidental events and a mechanism for employees to participate in accident investigations and reviews. Workers should be involved in the hazard recognition and risk processes, and should be included in the drafting of control measures. This involvement should include participation in the drafting and approval of new standards and policies, consultancy on changes to the safety system, and other pertinent changes. Communication with contractors, vendors, and visitors should also be incorporated and maintained.

THE NEXT STEPS

Once the decision has been made and the safety leadership team has been formed and constituted, Friend (2012) suggests the following steps:

Assuming top management is on board with any shifts toward a more positive safety culture, all members of the organization should also be on board. I maintain that workers always do the rational thing. In a given situation they will pursue the course of action that “seems like the thing to do at the time.” The goal is to make the safe thing the rational thing. This requires a number of actions to occur:

- Provide verbal and non-verbal support by top management for safety and all things safety. Encourage top management to provide a positive climate in terms of words and actions to promote safety. They do so by incorporating references to safety in all public presentations, engaging in discussions with line personnel regarding safety and safety issues, and following all safety procedures and practices within the organization. Their words and actions always promote safety.
- Encourage employees at every level of the organization to participate in safety and safety processes. This occurs in numerous ways. Examples include:
 - Soliciting input from workers regarding the hazards they face and appropriate courses of action for correction.
 - Including employees at every level in the planning, organizing, and execution stages of the safety program and moves to shift the safety culture. Ask for their opinions and attempt to respond to as much input as possible. Employees should be “in on” anticipated changes and should not feel surprised as attempts to make shifts in culture are initiated.
 - Utilizing employees in routine safety activities to include incorporation into routine inspections of their own work area and processes prior to and during operations and participation in team and task force activities as new approaches to safe work are explored and adopted.

- Ensure that workers are properly trained and equipped for each and every task. If they have questions or suggestions, they should be given the opportunity to engage with those. Listen to concerns and provide satisfactory—from the workers' perspective—feedback on all input received from them.

11 Steps toward Shifting the Workplace Safety Culture—Part 2

The second part of changing safety culture will discuss the following items:

- Risk assessment
- Risk control
- Authority, responsibility, and accountability
- Safety audits
- Safety culture survey
- Action plans based on audit reports
- Taking action
- Communication
- Safety and organizational goals

RISK ASSESSMENT

An organization should establish, implement, and maintain procedures for the ongoing hazard identification, risk assessment, risk evaluation, and determination of necessary controls.

The procedure(s) for hazard identification and risk assessment should take into account routine and non-routine activities, as well as the activities of all persons having access to the workplace, including contractors, vendors, and visitors. All human factors as well as modifications to the safety system should be considered. Changes to the process, workplace, or legal requirements should be taken into consideration when conducting risk assessments, and any change in design factors as well as staff changes must be taken into account.

Writing about safety culture change, Mark Friend (2012) agrees that risk assessment is a good starting point:

The level of operational safety is a factor in every organization. Some face much less risk than others, but exposure always exists. An organization can reduce its risk or eliminate some elements of it, but risk always exists. Risk involves the likelihood of a loss occurring combined with the expected amount of the loss following an accident. The assumption sometimes made by line management is that similar exposures to potential loss-producing events in the past haven't led to losses; therefore, current exposure to these events will not cause loss either. The difference between a loss occurring or not occurring during two, similar exposures can be a result of numerous

events over which line management may have control—often depending on the choices they make or possibly even as a result of chance.

To reduce risk and improve safety, first of all, exposures to loss must be identified. What processes, events, or products are most likely to lead to consequential losses? What is the amount of each loss and what is the probability of the loss occurring? Multiply the amount of likely loss by the probability of the loss occurring and that provides a rationale for making the case as to which exposures should have the highest priority. Once priorities are established, costs of correction must be calculated and compared to likely costs in the event of losses. The positive differences provide information regarding the cost benefit and help build the rationale for change to line management. (personal communication)

DEFINITION

Risk assessment is the evaluation and quantification of the likelihood of undesired events, the likelihood of injury and damage, and an estimation of the results thereof.

The role of risk assessment is to provide the necessary information on which to make decisions regarding the cost-effective commitment of resources to prevent loss. Risk assessment can also be used to determine if appropriate action is acceptable where it is impractical to totally eliminate hazards. Risk assessment will indicate where the greatest gains can be made with the least effort, and which action(s) should be given priority. This prioritization will bring about greater safety with the minimum level of effort.

Risk assessment is a vital part of the safety process. Risks cannot be identified unless the hazards are identified first. The risk is then evaluated, and only then can appropriate controls be put in place to minimize the risks.

The three steps of risk assessment are *hazard identification*, *risk analysis*, and *risk evaluation*. Only once these processes have been completed can a total risk profile be compiled.

HAZARD IDENTIFICATION

A hazard can be defined as *a situation or action that has potential for injury, damage to property, harm to the environment, or all three*. Once the hazard identification process is complete and the hazards have been analyzed, a risk analysis follows.

RISK ANALYSIS

A risk analysis can be defined as *the calculation and quantification of probabilities, frequencies, and consequence as a result of a risk*.

Risk analysis is the scientific measurement of the degree of danger in an operation and is the product of the frequency and severity of undesired events. It sometimes views the probability, severity, and frequency of the event.

Risk analysis provides a predictive method of projecting the risk and analyzing the possible occurrence, the probability of occurrence, and estimating the consequences.

A risk analysis involves a *probability analysis*, *frequency analysis*, and *impact analysis*. It helps reduce uncertainties as much as possible, as it provides all available information on which to base risk reduction activities.

- A probability analysis asks: What could happen here?
- A frequency analysis asks: What is the exposure to this risk, or how often could this occur, or how many people are exposed, and how often are they exposed to the risk?
- An impact analysis asks: How desirable or undesirable is the outcome of this risk?

Risk-Ranking Approach

By taking into account the probability, frequency, and severity of a risk, a figure that is called the risk index can be derived. The formula for calculating a simple risk index is:

$$\text{Risk Index} = \text{Probability} \times \text{Frequency} \times \text{Severity}$$

where Probability is the chance of something happening, Frequency is how often it could happen, and Severity is how bad it could be.

Consequences

The consequences (outcome) are ranked on a scale—from catastrophe to minor interruption, for example. A catastrophe is where there are numerous fatalities and losses exceeding several million dollars' damage.

Risk Score Calculation

Ranking the risk on the likelihood, exposure, and consequence scale determines the risk score, which could be from extreme (100) to acceptable (0–20). The risk analysis and risk score then enable prioritization of actions by using accepted risk control methods. Once the risks have been analyzed and risk scores determined, it is now possible to do a risk evaluation.

RISK EVALUATION

A risk evaluation can be defined as *a quantification of the risks at hand and an evaluation of the cost of risk reduction and benefits derived from reducing or eliminating risks*. It is basically a cost-benefit analysis to determine which risks can be reduced, the benefit of risk reduction, and the cost of risk reduction.

One of the main objectives of risk evaluation is to enable management to make decisions on which risks should receive priority and where risk control efforts should be directed.

Risk Reduction

By taking the risk score, equating it with the percentage of risk reduction, and comparing the cost of risk reduction to the benefits, a thorough evaluation can be made of whether or not the risk reduction justifies the effort.

For example, it may cost a lot of money to improve the instrumentation on a control circuit. The cost of reducing this risk would not be justified, as the possibility of an undesired event occurring because of the instrumentation is extremely slight, and the consequence of the risk would be a minimal interruption only.

Acceptable or Tolerable Risk

In every walk of life there is a certain amount of risk. The same can be said for manufacturing and mining processes. It is financially and physically impossible to eliminate all risks from all walks of life, and therefore we accept a certain amount of risk as part of our day-to-day living. Safety has been defined by some as acceptable risk.

ALARP

Keeping risk *as low as is reasonably practical* (ALARP) is accepted business practice. As soon as the risks extend beyond the ALARP region, then the consequences of those risks could be detrimental to the business and the people working there.

The only way to evaluate which risks should receive priority for rectification is by doing a thorough risk evaluation, weighing the risk score, percentage risk reduction, cost of correction, and the benefits, which can be categorized as:

- Extremely beneficial—100
- Beneficial—50
- Not really justified—20

Those benefits that fall into the first two categories should receive priority. Consideration should be given to the nonjustifiable efforts as to whether they reduce the risk to the ALARP region or not.

This risk evaluation assists management in budgeting for risk reduction, helps prioritize expenditure and effort, and gives specific target areas for risk reduction efforts. Further risk reduction is also highlighted by the risk evaluation, and decisions can be made as to whether they are practical.

Decisions concerning the cost-effective commitment of resources to the risk control program are easily made once the risk evaluation has been studied. Cost-effective risk reduction methods and time frames can also be compiled once the risk evaluation has been completed.

RISK CONTROL

To deal with the risks, a risk management plan is put into operation. This risk management plan is often referred to as the nuts and bolts of risk control and includes the four ways to handle risk: *treat*, *tolerate*, *transfer*, or *terminate*. By incorporating a

structured safety system into the organization, risk control actions will be prioritized and risks will be dealt with on an ongoing basis.

Establishing the status of the safety systems, controls, degree of management, and employee and union participation via means of risk assessment, and evaluating the physical risks in the workplace, is a vital part of the safety culture shift process. This forms the foundation on which a positive safety culture is built. Risks in the workplace can only be managed once they have been assessed. Ongoing risk assessment is an important component of safety culture.

ESTABLISHING AUTHORITY, RESPONSIBILITY, AND ACCOUNTABILITY

The culture change process starts at the top, is supported by the top, and is led by top management. The success or failure of the safety culture change process falls directly on the shoulders of the management team. The logical place to begin the process is therefore by clearly defining each manager's level of safety authority, safety responsibility, and safety accountability. This is where positive safety leadership begins—with each manager being allocated safety authority, responsibility, and accountability in his or her area of responsibility.

This authority, responsibility, and accountability should also be clearly defined for all levels of employees as well as union officials. Bill Hoyle (2005) confirms this:

Workers do have important responsibilities regarding health and safety. These include the responsibility to report all injuries and near misses no matter how many prizes and bonuses are offered for non-reporting. Workers have an obligation to question inadequate work permits, procedures and training and to demand that these are done properly. Workers have a responsibility to not be pressured to cut corners when management is in a hurry to get a job completed. They are responsible to demand that engineering controls are used whenever possible rather than PPE (Personal Protective Equipment). (pp. 18–19)

The three management terms above are widely used but seldom understood. In presenting workshops around the world I have asked numerous groups if they understood the difference and interrelationship between authority, responsibility, and accountability, and they had admitted that a refresher would be welcome. Since these are the most important assignments in the safety management process, some clearer definitions are given here.

SAFETY AUTHORITY

- In management, safety authority is formal, specified authority that gives a manager the authority to act in the name of the sponsoring executive or on behalf of the organization.
- Authority, in general, is the right or power assigned to an executive or manager in order to achieve certain organizational objectives.

These powers of authority are normally spelled out in the manager or employee's position charter or job description. This is why it is vital to have updated and accurate position charters for all positions, as this is where safety authority is allocated.

SAFETY RESPONSIBILITY

Responsibility is a heavy burden. *Safety responsibility is the obligation to carry forward an assigned task to a successful conclusion without accidental loss occurring.* With responsibility goes authority to direct and take the necessary action to ensure success. Safety responsibility is also the obligation entrusted to the possessor, for the proper custody, care, and safekeeping of property or funds or supervision of an individual or individuals.

SAFETY ACCOUNTABILITY

- Safety accountability is when a manager is under obligation to ensure that safety responsibility and authority are used to achieve safety and legal standards.
- Safety accountability means being liable to be called on to render an account or be answerable for decisions made, actions, outcomes, and conduct.

Although these definitions refer to management, they are applicable at all levels within the organization and refer to executives, union members, and employees.

Ultimate Accountability

The senior executive delegates some of his authority to lower levels within the organization, as well as some level of responsibility and a degree of accountability. However, ultimate accountability lies with him, as he is ultimately accountable for what happens within the plant, even though he has entrusted others to be diligent in the execution of their duties.

The higher up the organizational structure and the higher the level of authority, the more the responsibility is and the more the accountability is. This is why one must caution when stating that "everyone" is responsible for safety. Everyone is responsible for safety, but the responsibility (and accompanying accountability) differs from level to level within the company, depending on authority. One cannot be held responsible and consequently accountable for something over which one does not have authority.

Levels of Accountability

Safety departments cannot be held accountable for the safety of employees over whom they do not have authority. Everybody is responsible for safety within his or her area of responsibility and has appropriate authority. Top management is responsible for all the departments, people, and resources reporting to them, and middle management likewise. Employees are also responsible for safety within their sphere of authority.

Setting levels of authority, responsibility, and accountability must ensure that the levels of responsibility and accountability correspond to the level of authority. If a

person has authority to give instructions to 50 employees, then that person has the responsibility for giving safety instructions to those people. Such a person will be held accountable for those 50 should he or she not give correct instructions or should the employees not follow instructions. This person cannot be held responsible for anyone outside of this group who is *not* under his or her control. If a person has no authority over a group, he or she cannot be held accountable for items as important as that group's safety. The higher up the organizational structure, the more authority people have, and therefore the more accountable they become for the safety of the people and the organization.

The Health and Safety Executive (2005) emphasizes this point:

The establishment of clear rules and responsibilities for safety includes clear contractual responsibilities and ownership of rules. Communication is required when agreeing which organization, department or individual is responsible for each area of safety. (p. 13)

APPOINTMENT OF A SENIOR MANAGER

The South African National Standard (SANS) Occupational Health and Safety Assessment Series (OHSAS) 18002:2011 (Edition 1), *Occupational Health and Safety Management Systems—Guidelines for the Implementation of OHSAS 18001:2007*, recommends the appointment of a senior member of management to coordinate the occupational health and safety (OH&S) movement.

The organization shall appoint a member(s) of top management with specific responsibility for OH&S, irrespective of other responsibilities, and with defined roles and authority for:

- a) ensuring that the OH&S management system is established, implemented and maintained in accordance with this OHSAS Standard;
- b) ensuring that reports on the performance of the OH&S management system are presented to top management for review and used as a basis for improvement of the OH&S management system.

The identity of the top management appointee shall be made available to all persons working under the control of the organization.

OHSAS 18001 requires that the OH&S management appointee has to be a member of top management. The OH&S management appointee can be supported by other personnel who have delegated responsibilities for monitoring the overall operation of the OH&S function. However, the management appointee should be regularly informed of the performance of the system, and should retain active involvement in periodic reviews and the setting of OH&S objectives. It should be ensured that any other duties or functions assigned to the top management appointee do not conflict with the fulfillment of their OH&S responsibilities. (SANS OHSAS 18001:2011, pp. 29–31)

EXAMPLE OF AN ACCOUNTABILITIES STANDARD

Following is an example of a safety system standard clearly spelling out levels of authority, responsibility, and accountability at all levels. The specific and applicable details were issued to each person on pre-written letters that were then signed by the CEO.

Objective

To define the safety health and environmental (SHE) responsibilities, accountabilities, and authority to act from the CEO to all subordinate line managers and employees, and further, to appoint all levels of management responsible, and accountable, for the implementation of the company safety system, in their areas of responsibility.

Responsibility and Accountability

The chief executive officer is responsible for the issuance of the safety and health policy and will demonstrate and accept safety accountability by:

- Ensuring that there is an appropriate safety system in place and functioning at the company

He has the authority to:

- Adjust permanent manning levels to ensure safe operations and to approve the safety system for implementation

General managers, managers, superintendents, and supervisors are to implement the company safety system (the system) in their area of responsibility, in a manner to ensure that workplace risks are reduced to an acceptable level.

They are to ensure that the company safety standards are implemented, so that accidents resulting in injuries, occupational diseases, and property damage or business interruption are minimized or eliminated.

Each manager should be an active participant in the company safety system.

Safety Policy

Management at all levels is responsible for implementation of the company safety and health policy; an example states that: *The company is committed to achieving the highest performance in occupational safety and health with the aim of creating and maintaining a safe, risk-free, and healthy working environment throughout its business.*

Accountabilities

Through the company safety system, letters of accountabilities and responsibilities will be issued to general managers, managers, supervisory staff, and all employees at all levels, in the format of letters 1 and 2 (see HR department).

The respective employee, general manager, manager, superintendent, or supervisor, will read and understand the accountabilities document and will, in turn, accept the accountabilities by signing the acceptance portion of the letter, and dating the acceptance accordingly.

These accountabilities therefore designate leadership at all levels within the company as responsible and accountable for safety and health of their respective areas, and within their levels of authority.

All employees are responsible and accountable for conducting their work in compliance with established safety and health standards, job safe practices (JSPs), procedures, precautions, laws, and regulations.

Everyone at the Company

Everyone at the company will demonstrate and accept safety accountability by:

- Taking accountability for his or her own safety behavior
- Not accepting an instruction to perform an unsafe act
- Complying fully with all job safety practices and safety standards in the performance of his or her work

Everyone at the company has the authority to:

- Stop his or her job or task to ensure safety

Company Supervisors (First Line)

Company supervisors will demonstrate and accept safety accountability by:

- Not giving an instruction to any member of their team to perform an unsafe act
- Ensuring compliance with all job safety practices and safety standards relevant to their team
- Taking immediate action to eliminate or control any unsafe condition that exists or is brought to their attention in their area

Company supervisors have the authority to:

- Direct and instruct nonsupervisory employees on behalf of the management
- Stop production under their control
- Requisition the necessary resources from within the plant to control any unsafe condition
- Initiate formal commendation, warning, or proceedings for nonsupervisory staff for safety-related issues leading to warnings

Company Superintendents (Second Line)

Company superintendents will demonstrate and accept safety accountability by:

- Approving all JSPs relevant to their area of control
- Ensuring that the job safety practices and safety standards relevant to their area of control are fully comprehensive and up to date
- Implementing prompt and permanent solutions for any unsafe conditions that exist in their area

Company superintendents have the authority to:

- Requisition the necessary resources from within the organization to control any unsafe condition
- Finalize formal commendation, warning, or proceedings for nonsupervisory staff for safety-related issues leading to warnings

Managers at the Company

Managers will demonstrate and accept safety accountability by:

- Setting and communicating clear safety objectives within the safety system for their department
- Ensuring that accident investigations are undertaken and completed promptly and comprehensively, and that immediate and root causes are identified and eliminated or mitigated within an established time frame

Managers have the authority to:

- Requisition the necessary resources from outside the organization to control any unsafe condition
- Finalize formal commendation, warning, or discipline proceedings for non-supervisory staff reporting to them for safety-related issues leading to suspension

General Managers at the Company

General managers will demonstrate and accept safety accountability by:

- Ensuring that the company's safety system is effectively implemented in their group
- Ensuring the development and implementation of appropriate safety policies for their group

General managers have the authority to:

- Review and set the priorities of any safety-related work
- Finalize formal commendation, warning, or disciplinary proceedings for any staff reporting to them for safety-related issues leading to dismissal

Chief Executive at the Company

The chief executive will demonstrate and accept safety accountability by:

- Ensuring that there is an appropriate safety system in place and functioning at the company

The chief executive has the authority to:

- Adjust permanent manning levels to ensure safe operations
- Approve the safety system for implementation

Reappointment

Should an employee be promoted to another position, or upon recruitment of a new employee, reconfirmation of safety accountabilities shall be done in writing, within a week of the change, and the necessary copies filed.

Physical Requirements

Appointments for safety and health responsibility and accountability shall be made in writing in the format of the standard letter and shall be filed in the human resources department.

Management Commitment and Involvement

Management's commitment is essential for the successful implementation and maintenance of the company safety system. There must be visual signs and actions that reinforce this commitment.

The following, among others, are minimum requirements for senior and other managers:

- Conduct or participate in internal safety, health, and environmental audits at least twice per year
- Participate in annual external audits and internal housekeeping competitions
- Formulate action plans for the implementation of the safety system elements
- Initiate accident, near-miss, and injury investigations
- Set safety and health goals for their area of responsibility

Examples include:

- Safety audit scores.
- Housekeeping competition scores.
- Number of safety inspection reports received.
- Frequency and quality of safety meetings.
- Attend at least two 8-hour safety training courses/seminars per year. (Examples include Modern Safety Management, Accident Investigation, Critical Task Identification and Analysis, Risk Assessment, Accredited Auditors.)
- Review and sign the near-miss incident/accident reports.
- Review and sign safety representatives' reports.
- Regularly attend, or chair, SHE committee meetings and sign meeting minutes.
- Ensure that safety information, reports, and achievements are discussed in safety meetings and displayed in areas of responsibility.
- Participate in the achievement of safety excellence by acknowledging safety representatives, and other SHE training and certification.
- Attend safety awards presentations, safety incentive award presentations, and audit opening and closeout meetings.

SAFETY AUDITS

It is clear that proactive safety control is needed. Safety audits measure the management work being done to control losses, and are therefore vital performance indicators in the safety system. An audit will define what work needs to be done to improve safety and health management.

Before one can plot the path ahead it would be opportune to establish where or how far along the path the company already is. The best way to do this is to establish a baseline by means of a complete safety and health audit of the safety status. The audit will tell where the organization fits in comparison to organizations running best practice safety systems and will also give an indication of the status of the existing safety culture. (Friend, 2012, personal communication)

SANS OHSAS 18001:2011 recommends ongoing audits of the safety system:

The organization shall ensure that internal audits of the OH&S management system are conducted at planned intervals to:

- a) determine whether the OH&S management system:
 - 1) conforms to planned arrangements for OH&S management including the requirements of this OHSAS Standard; and
 - 2) has been properly implemented and is maintained; and
 - 3) is effective in meeting the organization's policy and objectives;
- b) provide information on the results of audits to management. (SANS OHSAS 18001:2011, p. 60)

DEFINITIONS OF A SAFETY AUDIT

- A safety audit provides the means for a systematic analysis of each element of a safety management system (SMS) to determine the extent and quality of the controls.
- A safety audit is a critical examination of all, or part, of a total safety operating system.
- An audit is a management tool that measures the overall operating effectiveness of a company's safety and health system.

REASONS FOR AUDIT

Management usually believes that their safety performance is much better than it actually is. Auditing the safety and health system is the only positive and progressive method of measuring safety performance, and of rectifying management's misconceptions of how well they are doing in safety.

Most managers only measure safety performance by the number of disabling or lost-time injuries that are experienced, and the number of days lost as a result of these injuries. This performance is normally in the form of a disabling injury incidence rate (DIIR) and disabling injury severity rate (DISR), respectively.

Incident rates are an indication of how many incidents have occurred, or how severe they were. They are measurements *only* of past performance or lagging indicators. Incident rates are also only one of many items that can be used for measuring performance. There are many items that should be used to measure performance, most of which are positive in nature; incident rates tend to be viewed as an indication of something that is wrong with a safety system, rather than what is positive or right about the system. In spite of this, for many companies, incident rates remain the primary indicator of safety performance measurement. This is primarily because incident rates are fairly easy to figure out, and can be easily compared between one company and another, and are used throughout industry. (Rochester Institute of Technology)

Regretfully, this measurement only measures the consequences of poor control. As they are largely dependent on luck, they do not accurately reflect the work being done to control losses. They also are not an indication of a safety culture and do not tell much about the effort around safety at the organization.

Less than 1% of all accidental events result in major injuries; some result in minor injuries, and many cause property damage. The majority of accidental events do not result in injuries, but in near-miss incidents or warnings. Control systems

are therefore essential to eliminate the causes of these events. The efforts must be directed toward the causes and not the consequences. Seldom can the consequences be determined.

The Health and Safety Executive (HSE) of Great Britain conducted a study of safety programs and published a report entitled *Success and Failure in Accident Prevention* (1976). The study was conducted by the Accident Prevention Advisory Unit (APAU) of the HSE, and the extensive study was summarized as follows:

Any simple measurement of performance in terms of injury frequency rates or incident rates is not seen as a reliable guide to the safety performance of an undertaking. The report finds there is no clear relation between such measurements and the work conditions, the injury potential, or the severity of injuries that have occurred. A need exists for more accurate measurements so that a better assessment can be made of efforts to control foreseeable risks. It is suggested that more meaningful information would be obtained from systematic inspection and auditing of physical safe guards, systems of work, rules and procedures, and training methods, than on data about injury experience alone. (HSE, 1976)

The information on injury experience is reaction and not control. Audits measure the degree of control an organization has over the risk arising from its processes.

Tom Peters and Bob Waterman (1982) state in their book, *In Search of Excellence*, “What gets measured, gets done.” By putting a measurement on something, it is the same as getting it done. By quantifying safety, we focus attention to that area, and once the information is made available, people respond to it.

Measurement is a comparison of performance with standards. Without adequate standards there can be no measurement or evaluation of safety systems.

BENEFITS OF AUDITS

A safety and health audit of the work being done to control loss measures the safety system and highlights its strengths and weaknesses. The audit compares work being done, and standards being maintained, with accepted safety and health standards. It can be used to review and evaluate the performance and effectiveness of the safety system, and also to establish whether or not it meets international safety management system standards.

A safety and health audit will help prioritize work to be done to further reduce the risks of the business. A systematic and thorough audit will indicate the development of a viable improvement plan, which can then be effectively communicated to all levels.

Audits also give recognition. Aspects of the safety system that are running well are scored and identified, thus giving recognition for good control. Audits also focus management’s attention on the safety system elements, and once their attention is focused on the safety elements, attention will be given to these elements.

The principle of safety definition states that *decisions concerning the safety program can only be made if the basic causes of loss-producing events are clearly identified*. An audit helps identify these basic causes.

LEGAL COMPLIANCE

Part of the audit process is establishing the degree to which the company complies with the local safety and health legislation. In some cases a totally separate audit can be arranged specifically to evaluate legal compliance. Conformance and compliance with legal safety regulations form part of the culture of the organization.

This audit would form the launch platform for further innovation and intervention to improve safety culture.

SAFETY CULTURE SURVEY

The National Institute for Occupational Safety and Health (NIOSH) compiled a short survey to determine safety culture in the medical industry. This survey gives an indication of the type of questions posed during such a survey.

1. New employees quickly learn that they are expected to follow good safety practices.
1 2 3 4
2. There are no significant compromises or shortcuts taken when worker safety is at stake.
1 2 3 4
3. Where I work, employees and management work together to ensure the safest possible working conditions.
1 2 3 4
4. Employees are told when they do not follow good safety practices.
1 2 3 4
5. The safety of workers is a big priority with management where I work.
1 2 3 4
6. I feel free to report safety violations where I work.
1 2 3 4

1 indicates *strongly disagree*, 2 indicates *disagree*, 3 indicates *agree*, and 4 indicates *strongly agree*. According to NIOSH (2012), the scores indicate the following:

- Between 9 and 15 indicates a poor safety climate at work
- Between 16 and 20 indicates a fair safety climate
- Between 21 and 24 indicates a good safety climate

Figure 11.1 is a basic example of a safety culture survey. More sophisticated and elaborate models are available.

ACTION PLANS BASED ON AUDIT RESULTS

Once the baseline audit has been completed and a detailed report on the strengths, weaknesses, opportunities, and threats has been tabled, the safety leadership team

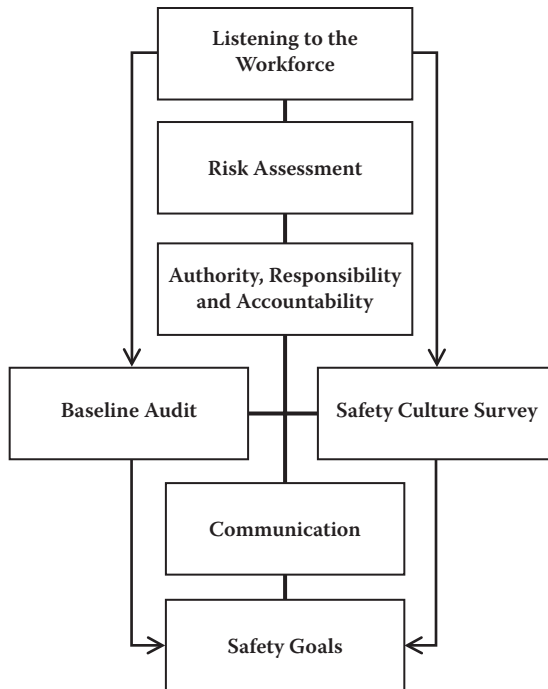


FIGURE 11.1 A baseline audit and a safety culture survey help in formulating safety goals.

(SLT) can draw up action plans for the road ahead. These plans will form the safety culture change strategy, which would look to integrate safety into the daily running of the business.

John R. Childress (2009) notes that some things may not need to change:

Spend an appropriate amount of time understanding the strengths and weaknesses of the current culture before trying to implement a culture change process. Not everything needs to change; great change processes are built around the current strengths of a company and its employees. (p. 4)

AUDIT CLOSEOUT SESSIONS

Following the audit, there should be several closeout meetings where the results of the audit are discussed and feedback is given. Employees should be included in these sessions, as they will be part of the process of rebuilding the safety culture. The main outcome of these meetings will be planning the steps to build on the strengths of the systems that exist and to eliminate the threats highlighted by the audit. The audit will also help in strategizing the implementation of the safety system elements and give an indication of prioritization.

FIX THE HAZARDS

The first order of business on the plan should be the immediate rectification and elimination of the hazards listed in the baseline audit report. Hazards could be physical hazards or hazards caused by high-risk operating practices or processes. These hazards should be ranked in some form of priority format. A simple ranking is the ABC classification of hazards:

- A: Immediate threat to life or limb or plant and equipment.
- B: Likely to cause serious injury or substantial property damage.
- C: May cause minor injury and less severe property damage.

Thus, the first step in the culture change process would be the elimination of noted hazards.

Some hazards can be rectified in a short time, and some may take longer to fix. Whatever the scheduling, some form of temporary measures need to be put in place while the hazard is being permanently fixed. For example, while upgrading machine guarding that has exposed pinch points, a temporary barrier can be erected around the machine while it is being modified. Once hazards have been identified, they should receive immediate attention where possible, as the credibility of the “new safety direction” is at stake.

LEGAL COMPLIANCE

The baseline audit would have indicated where the organization failed to meet the legal safety and health requirements, and actions to conform to the law should be the next priority. Many legal requirements will be met with the implementation of the safety system, but to show complete integrity, legal safety compliance should be high on the immediate post-audit action list. Safety culture change is also about management credibility, and complying with the legislation shows positive action.

TAKING ACTION

Changing a safety culture means encouraging management and employees to perform actions that constantly improve safety and minimize risks. An SMS will contain elements that call for actions from both parties. These ongoing actions become behaviors that eventually become habits. As something becomes a habit, something you do without thinking about, it becomes a value. A value is something that you never forget. Every safety action done today, that wasn't done yesterday, is a step toward building the safety culture. Safety culture means doing things to improve and maintain safety at the workplace. These actions form the building blocks and driving force behind safety culture change.

For example, yesterday the plant manager did a housekeeping inspection in the assembly area. This he had never done previously and is therefore a safety action that is another building block toward the culture. The standard should require weekly

housekeeping inspections by the plant manager (and other managers) to keep this initiative alive.

An employee submitted a near-miss incident report about a piece of the roof that was blown off by the wind and landed on the walkway used by employees on their way to the canteen. Previously this would not have been reported unless someone had been injured. The event was reported and immediate action taken. This safety action seldom happened before. It is therefore a change of attitude brought about by the knowledge that the employee did not have to put his name on the report and would not be singled out or intimidated by his or her peers for submitting the report. When it comes to reporting, safety amnesty eliminates a great deal of the participation-in-safety fear factor.

COMMUNICATION

Management's intent to change the safety culture should be communicated openly to all levels of the organization. Employees need to be aware of what is happening and the reason behind the change, or they will become suspicious and distrustful. Email, newsletters, the committee system, and other methods can be used to convey the message of change. At this stage in the process it is vital to listen to employees as well. They are at the workplace and have knowledge of the work risks and what is needed to reduce them. Their input and participation is of paramount importance in the safety turnabout.

Managers should start practicing "management by walkabout" and visit their respective work areas. They must speak to their employees, who are vital sources of information and are often overlooked in a culture intervention. Employees love to talk about safety and can tell more about the current state of safety in the plant than the audit will. The scheduled site visits and safety walkabouts should be written into the key performance areas of managers at all levels. This would be part of assigning safety responsibility, as discussed.

SAFETY AND ORGANIZATIONAL GOALS

If an organization wants a robust safety culture, safety must be integrated into the overall goals and day-to-day activities of the entire organization. The company's safety and health goals must be consistent with, and related to, the overall goals of the company. These should have direct links to the company goals and must be developed in a way understood by managers and employees, and they should be incorporated in the company business plan. Employees, supervisors, and managers should have specific safety and health goals and measures that drive continuous improvement.

12 Steps toward Shifting the Workplace Safety Culture—Part 3

This chapter discusses business order in the workplace.

INTRODUCTION

Forming the safety leadership team (SLT) and arranging an external safety and health audit are already steps toward structuring a safety system. Setting up the system also calls for the constitution and establishment of different-tiered safety committees. It also establishes a safety culture baseline based on the audit findings. The big question now is: What is the next step in the implementation of a safety system, and how is it done? The short reply is that it's like eating an elephant—one bite at a time. Bite one is getting the workplace in order.

The main mistake that employers make in safety is that they start by trying to modify the employees' behavior. They try to fix the worker but neglect the workplace! Modifying behavior is a long-term objective, and in most instances does not work, because behavior is dictated in the main by the environment in which it operates and the leadership that it follows.

BUSINESS ORDER (GOOD HOUSEKEEPING)

Once there is management commitment for safety change and the guiding committees are in place, the work environment needs to be brought up to standard. Most factories, assembly plants, and mines lack business order. Business order is when there is a place for everything and everything is in its place, always. In plain language, the workplace housekeeping needs to be improved to world's best practice. This means that the workplace must be immaculate! Yes, heavy industry and even underground mining work areas can be immaculate, and have to be if risks are to be eliminated and employees are to work safely. How can an organization point a finger at an employee for one unsafe act if the work environment is not in order, is not immaculate, does not have excellent housekeeping, and is not free from risks? If you clean up the workplace, you clean up the thought processes of the employees in that workplace. Maintaining a spotless workplace does more to improve safety culture at a workplace than any other intervention, system, or control.

The immediate impression one receives of the housekeeping at a plant gives a clear indication of the standard of safety of that plant. The housekeeping is a direct reflection on management's concern for safety and also a reflection of the workers' involvement, motivation and training in safety. An area that looks clean with everything in its place and with no slipping, tripping, bumping or falling hazards is an area where good housekeeping is practised and an area in which people are less likely to be injured and fires are less likely to occur. (McKinnon, 1995)

The lack of an integrated safety program, inadequate standards, low standards, or nonconformance to safety standards, normally manifests itself in the obvious scenario of poor housekeeping. Housekeeping/business order can be defined as *a place for everything and everything in its place, always*. Housekeeping is of vital importance in any industrial or mining environment for the following reasons:

- It reduces time spent looking for materials, equipment, spares, and tools.
- Valuable working and storage space is made available when the proper items are stacked in the proper shelves, cupboards, and designated stacking areas.
- People work cleaner, neater, and more accurately in an environment where everything is in its place. Places should be provided for tools and incoming and outgoing materials. Sufficient receptacles should be provided for general storage, removal of scrap and waste, and adequate provisions made for ample walkways, travel-ways, and work areas.
- Accidents that lead to damage of property and equipment and personal injury to employees are reduced by keeping the walkways, working areas, and storage areas free from superfluous material.
- Fire hazards are reduced by ensuring that combustible material is correctly stored, and that chemicals and other flammable liquids do not come into contact with sources of ignition and other combustibles.
- The productivity of the workforce is improved dramatically when good housekeeping prevails; a constant flow of workers, machinery, and materials is facilitated by good housekeeping practices.
- The quality of the products, goods, and services provided is better in an environment that is conducive to good housekeeping. Quality products, goods, and services can only be produced by a quality work environment. This means the environment must practice good housekeeping at all times.
- Although a very basic element of safety, good housekeeping plays a vital role in creating a firm foundation on which all other aspects of the safety and health system can be built.
- Good housekeeping is good management, and many successful managers who have taken over factories and mines have immediately embarked on good housekeeping programs, which has brought about increased production, improved the employees' morale, and created more positive attitudes toward the organization and the production of its products.

It has often been said that if you cannot manage the housekeeping in a department, how can you manage the department? Poor housekeeping wastes time and

money and uses up valuable factory space, while at the same time creates hazards and potential fire hazards.

It is easier to maintain good housekeeping than to embark on a quarterly cleanup to improve housekeeping and remove the accumulated scrap and junk. Integrating good housekeeping practices into the day-to-day management is the cheapest and most effective in the long run. New employees are automatically inducted into the good housekeeping standards, and this creates positive work habits and a culture of order from the beginning. Fires are less likely to occur as the basic causes of fires and accidents have been tackled and eliminated by the ongoing housekeeping program.

Housekeeping is an ongoing process, which becomes a self-discipline practiced by each individual, foreman, supervisor, and section manager. Housekeeping is common to factories, mines, hotels, resorts, homes, garages, and in fact anywhere, including the local supermarket, and is a good place to start laying a foundation for a positive safety culture.

THE BUILDINGS AND FLOORS

The buildings should be in a good state of repair, and there should be no damaged walls, pillars, windows, or doors and door jambs. Damage to the structure may be indicators of past damage-causing accidents. Roofs and ceilings should be secure. Windows should be kept clean and be repaired when broken. Adequate ventilation is also essential to maintain a safe workplace. The floors should be free from trip hazards, and there should be no cords, cables, or pipelines lying across the floor. Walkways should be free from obstruction. Oil spills and other potential slip-and-trip hazards should be eliminated. Walkways should be demarcated and must be separate from working and storage areas.

DEMARCATIION OF WORK AREAS AND WALKWAYS

Chaos can be created in a work area if there is no business order present. Haphazard storage of material and undefined working and walking areas can contribute to this chaos. Chaos in turn leads to fires or accidents, resulting in injuries and damage to property, equipment, and product.

To bring about order in a workplace, it is necessary to mark off walkways, work areas, and storage areas, and thus introduce discipline and order onto the shop floor. To ensure safe passage of people and materials, walkways need to be defined by means of demarcation.

Storage areas for both raw materials and finished products need to be defined as well as work areas and areas where no stacking or storage should take place. Demarcation is essential to clarify and separate these areas, as is usually done by painting 3-inch lines on the floor, much the same as road markings are done. A color code is normally incorporated to indicate the purpose of the demarcation. For example, walkways could be delineated with yellow lines and storage areas with white lines.

DEFINING DEMARCATION

Demarcation is *the marking off and separating of various areas used for different functions that helps to bring order into a work area by separating work activities, storage activities, passage, and roadways.*

TYPES OF DEMARCATION

Demarcation can be explained by the following terms:

- Fencing off
- Marking out
- Closing off
- Barricading
- Dividing
- Defining
- Indicating
- Establishing

Thus demarcation separates and indicates various areas used for different purposes.

“NO PARKING” AREAS

Demarcation can be used to indicate where vehicles are prohibited to park. Demarcation can also be used in critical areas, such as below firefighting and electrical equipment. The purpose of this demarcation would indicate a “keep free area” or a “no parking” area. Should goods be stacked in front of firefighting equipment, it could render the firefighting equipment inaccessible, which is undesirable in an emergency.

Should one want to gain immediate access to electrical switchgear or distribution boards, demarcation below that area will ensure that nothing hampers the access. This is also a legal requirement in many countries.

PARKING AREAS

To ensure that employees and visitors park their vehicles in the correct areas in a correct manner, parking bays should be demarcated. To discourage parking of vehicles in unauthorized places such as in front of first aid stations, fire hydrants, or other unauthorized areas, “no parking zones” are demarcated on such areas.

TRASH CANS

To ensure that trash cans are placed at strategic positions and that they are returned to these positions, their positions should be demarcated. Refuse containers and dumpsters, supplied by contractors, should also stand in a demarcated area to ensure they are returned to that area.

“NO OPEN FLAMES” AREAS

At workplaces smoking is prohibited in certain areas. These areas are indicated by means of demarcation and notices. In certain instances a demarcated red line on the floor indicates that crossing the line means moving into an area where open flames are prohibited.

CONSTRUCTION AREAS

Building and construction contractors often demarcate their entire work area by erecting a fence around it. This ensures that the construction site is demarcated and prevents unauthorized entry onto the site.

STORAGE AREAS

Storage areas are demarcated to ensure that both raw materials and finished products are stored safely in correct areas. Storage racks are demarcated to ensure stacking on the ground below the racks does not occur. No-stacking areas are also suitably demarcated.

WALKWAYS

Walkways ensure the safe passage of workers from one area to another. If walkways are not clearly defined and demarcated, no defined path exists. This could be hazardous, as items could be stored in pathways, which could create trip-and-slip hazards.

ROADWAYS

Roadways for the passage of vehicles or forklift trucks should be demarcated both in the yard area and in the factory area. The roadways should be clearly marked and kept free of superfluous material at all times. This will ensure safe transportation of goods into and out of the plant and separate vehicle and pedestrian traffic.

The demarcation of national roads and freeways is also a discipline to ensure that vehicles adhere to the correct side of the road. The same standards and color coding used on the roadways outside the plant should continue inside the plant to ensure standardization and continuity.

WORK AREAS

Work areas should be demarcated to ensure that the employees carrying out the work have sufficient space to work. This will ensure a safe work space that should be separated from walkways, storage areas, and roadways by means of demarcation.

EVACUATION ASSEMBLY AREAS

Evacuation assembly areas used as part of the emergency evacuation plan should be clearly demarcated. Notices indicating their locations are used in conjunction with demarcation where practicable.

STACKING AND STORAGE

Adequate facilities should be provided for the stacking and storage of materials, spares, equipment, and other items. One of the weakest areas in business order is stacking and storage. Stacking should be neat, stable, and controlled, and no unsafe stacks should be tolerated. Stacking should only occur in authorized areas and places.

SIGNS

Safety signs and other notices should not be old, dirty, or tattered, but must be clean, applicable, current, and well maintained. Faded or tattered signs give a poor impression of the workplace, and safety signs that are faded indicate a lack of attention to safety matters. Signs should be applicable, correctly color coded, and in good legible condition.

Old-fashioned safety slogan signs can be more of a distraction than a help. This method of promoting safety is slowly being discontinued, as notices and banners promoting a safety message are often seen as a substitute to a fully integrated safety system. Often incorrect wording is used on these signs; for example, some refer to “accident-free” when the correct message is “injury-free,” which is not very professional from a safety viewpoint.

There is nothing wrong with displaying modern, applicable safety information as long as it is kept in order and changed out when required.

TOILET, WASHROOM, AND LUNCHROOM FACILITIES

Clean, hygienic toilet, washroom, and lunchroom facilities tell a lot about the company’s safety culture. Dirty facilities are a direct reflection of the safety culture of the workplace.

I once inspected a toilet facility at a mine in a foreign company, and in the only bathroom found that the only urinal’s outlet pipe was disconnected at the bottom, and everything that went in ran out onto the floor. The miners were literally walking around with wet boots, yet the management didn’t waste any time in telling me that the employees had “an attitude” in regard to safety.

The physical work conditions are the result of a safety management system and are a visual indicator of a positive culture or lack thereof. No amount of paperwork or policies, meetings, or other safety activities can be said to be working if the physical conditions of the plant are not immaculate. The physical state of the workplace is a reflection of the efficiency of the safety system.

MECHANICAL AND ELECTRICAL ENVIRONMENT

Before expecting a change in safety culture, the physical workplace must be put in order. This includes the guarding of all machinery, the erection of handrails where necessary, and any other modification or repair required to bring the workplace up to compliance with safety legislation. The electrical installation must be safe, and all electrical switches and circuit breakers must be clearly labeled in a standardized

manner. Pipelines should be labeled as to their contents, direction of flow, pressure, and temperature where applicable.

ERGONOMIC SURVEYS

Ergonomic surveys should be undertaken to eliminate any possible ergonomic risks to employees.

OCCUPATIONAL HYGIENE RISKS

A thorough occupational hygiene survey should be conducted and any potential risks eliminated or controlled. Noise, dust, vibration, ventilation, lighting, and similar hygiene risks all impact on employees. The workplace should be free from these hazards.

CONCLUSION

The condition of the workplace is a direct reflection of the safety culture of that workplace. The first step in changing safety culture is changing the environment to one in which a positive safety culture can be created. This involves cleaning up the workplace and bringing about business order to all areas of the workplace. This includes offices, warehouses, and even the CEO's office! Once the workplace has been cleaned up, demarcating separate areas for work, storage, and passage immediately creates an orderly workplace. Improving the stacking and storage practices helps eliminate hazards and also contributes to the good order.

There are a number of industry-specific or mine-specific risks that have not been mentioned in this chapter, but the basic concepts mentioned here should be a good indicator of what needs to be done to create a risk-free workplace. An organization cannot have an injury-free workplace until it has a risk-free environment.

Generally all hazards should be identified and rectified at this stage, both physical and environmental, so that employees are placed in a neat, orderly, hazard-free environment that is conducive to positive attitudes and behaviors. Positive safe behavior cannot be expected from employees who are placed in an unsafe environment that is not conducive to safe behavior.

13 Steps toward Shifting the Workplace Safety Culture—Part 4

IMPLEMENTING THE SAFETY SYSTEM CONTROLS

The following steps in the safety culture change process will be discussed in this chapter:

- Management control
- Implementing a safety management system (SMS)
- Developing safety system standards
- How a safety system impacts safety culture
- Changing the culture

INTRODUCTION

Risks are controlled and mitigated by a systems approach using a structured safety management system. A safe work environment and positive employee attitudes are a result of a good safety management system. Control is perhaps the most important management function, as this is what drives the safety system.

The safety management system consists of a number of controls. It requires managers to lead the safety effort and become active members in the safety system. Inspections and housekeeping reviews are required, as well as the establishment of committees where safety work can be delegated and where the state of safety can be monitored and reported on. Ongoing risk assessments are a control measure to identify potential accident-causing situations before anything happens. The reporting of near-miss incidents and the elimination of the root causes of these accident precursors both form part of proactive safety control.

MANAGEMENT CONTROL

Safety controlling is defined as *the management function of identifying what must be done for safety, inspecting to verify completion of work, evaluating, and following up with safety action.*

The modern safety approach is the *plan-do-check-act* methodology.

- *Planning* is the establishment of objectives and processes and actions necessary to deliver results in accordance with the safety policy leading statement.

- *Doing* entails implementing the processes and actions to achieve the goals and ambitions set by the guiding policy document and relevant standard.
- *Checking* is the monitoring phase where achievements are gauged against the policy and standards.
- *Acting* is taking continual actions to improve the safety system and its processes.

The Health and Safety Executive (2001) proposes three main areas for management control:

Level 3—effective workplace precautions provided and maintained to prevent harm to people at the point of risk.

Level 2—risk control systems (RCSs): the basis for ensuring that adequate workplace precautions are provided and maintained.

Level 1—the key elements of the health and safety management system: the management arrangements (including plans and objectives) necessary to organize, plan, control and monitor the design and implementation of RCSs. (p. 10)

Safety culture can only be created when management techniques and practices are applied to safety as they would be applied to production or other aspects of the business. Management control is the most important safety management function and has seven steps, detailed in the following sections.

IDENTIFY THE RISK AND SAFETY WORK TO BE DONE

Management, in conjunction with the workforce, should go to the point of action, carry out inspections, hold discussions, and determine exactly what work needs to be done to make the work environment safer and healthier (by identifying and mitigating the identified risks). Listening to the workers is invaluable in this regard. A baseline safety audit would assist this process. The identification of work to be done to train, guide, educate, and motivate workers toward safe work practices should also be considered.

Based on this risk assessment, management lists and schedules the work needed to be done to create a safe and healthy work environment and eliminate high-risk acts of people. This would mean the introduction of a suitable structured SMS based on world's best practice. All safety management systems should be based on the nature of the business and be risk based, management led, and audit driven. This could include having to guard machinery, demarcate walkways and work areas, purchase correct tools and equipment, and set up maintenance systems for equipment, etc.

The Health and Safety Executive (2001) refers to determining the hazard burden as follows:

The range of activities undertaken by an organization will create hazards, which will vary in nature and significance. The range, nature, distribution and significance of the hazards (the hazard burden) will determine the risks which need to be controlled.

Ideally the hazard should be eliminated altogether, either by the introduction of inherently safer processes or by no longer carrying out a particular activity, but this

is not always practical. If the hazard burden is reduced and if other things (variables) remain constant, including consistent operation of the health and safety management system, this will result in lower overall risk and a consequent reduction in injuries and ill health.

For example, the inventory of hazardous materials might be reduced so that the associated risks are reduced. Of course, the hazard burden may increase as the organization takes on new activities or makes changes to existing ones. For example, increasing the throughput on a chemical plant might involve larger inventories and larger pipe diameters resulting in potentially larger releases. (p. 11)

SET STANDARDS OF PERFORMANCE MEASUREMENT

Standards in safety are referred to as “measurable management performances.” Standards are set for the level of work to be done to maintain a safe and healthy environment free from actual and potential accidental loss. Standards are established in writing for all the safety and health management system elements. Without standards the management system has no direction, and safety expectations cannot be established. (If you don’t know where you’re going, any road will take you there.)

Setting standards for the safety of the workplace will entail determining the major areas of risk and, in conjunction with various committees, unions, and employees, drawing up acceptable standards for items such as:

- Machine guarding
- Ventilation
- Lockout
- Demarcation
- Housekeeping
- Ladders
- Scaffolds
- Fire protection
- Critical task procedures
- Occupational hygiene

A lot of these standards have already been defined and written by prominent safety organizations in various countries, and the safety wheel need not be reinvented. Local safety and health legislation also prescribes certain standards, and these could be used as a guideline. Many years of research and input from numerous quarters have contributed to the development of these standards.

Management should modify these standards to suit their company’s requirements but should not water down or eliminate the standards because they are too difficult to achieve.

The standards should be measurable management criteria, and therefore they should be reasonable, attainable, and quantifiable. Standards would also include time frames for initial completion and ongoing updates. Any standard set should include *what* must be done, *who* must do it, and by *when* must it be done.

SET STANDARDS OF ACCOUNTABILITY

Standards of accountability are now set by delegating authority to certain positions for ongoing safety work to be done. Coordination and management of the safety system needs to be allocated to certain departments and individuals, and this standard dictates who must do what, and by when, to run and maintain the system.

Traditionally the function of safety was given to the safety department, and it was told to manage the safety. Safety does not belong in the safety department, but with line management.

Perhaps one of safety's biggest stumbling blocks is the responsibility for safety has been pushed down to the safety department. As soon as there is a safety issue, it becomes the responsibility of the safety department. Safety belongs with the line management, from the lowest level of management to the chief executive officer. Safety is their function. The safety department should only coordinate the safety activities and not accept responsibility for the entire safety function. (McKinnon, 2007, p. 135)

Setting standards of accountability is where the management team states who must do the work and by when. This would entail appointing certain responsible people, such as:

- Safety coordinator
- Occupational hygiene coordinator
- Health and safety representatives
- Divisional safety committees
- Central safety committees
- Accident investigators
- Responsible engineers
- Internal safety auditors
- Fire coordinator
- Permit issuers
- Ladder/lifting gear maintenance
- First aid attendants
- Housekeeping coordinators

Company letters of appointment should be given to these nominated people, as well as a brief description of their responsibilities and accountabilities. The correct person must be appointed for the task, and adequate, relevant training must be provided.

The nomination of safety committee members should be done on a democratic basis, and the chairperson likewise elected, where applicable. One of the most important committees to be established under these standards would be the joint management and union safety and health committee. This committee would assist in the setting of standards of accountability of the various persons. It also offers a platform for open and frank safety discussion between management and employee representatives.

When setting standards of accountability, it must be remembered that accountability for safety can never be delegated. The individual worker remains ultimately

responsible for the safety of himself or herself. Managers are responsible for the employees working under them within their area of control. Employees such as the safety coordinator are only responsible to coordinate the program and can never be held responsible for the safety of the organization.

Again, safety is not the responsibility of the safety department. The safety department seldom has the authority to carry the burden of safety responsibility. It can only be responsible for coordinating the activities that constitute the ongoing safety program.

The management work of setting standards of accountability is of utmost importance to the success of the organization. If permit systems are needed, for example, then employees must be given the responsibility to devise these systems, modify them, and implement them. This gives them the satisfaction of helping to achieve a high standard of safety. Some assistance can be achieved by:

- Visiting other plants that run a successful safety system
- Calling in safety consultants to help write safety standards
- Contacting local safety organizations to assist
- Liaising with the local legal inspectors for advice concerning standards

MEASURE AGAINST THE STANDARD

Measurement against the standards is the next essential part of the safety process. This ensures that the standards are being introduced and adhered to. Most managers fail because they do not carry out regular safety inspections or safety walkabouts (measurements). This measurement is a simple process whereby they inspect the work area and compare the work being done and the existing conditions against the accepted standards.

According to A.A. Buys (1994), then head of management services of the Alberton City Council, South Africa:

Management isolation occurs when a chief executive or manager is isolated from his worker corps as leader, with the result that he loses contact with the activities of the organization and the situations in his command order. This can be catastrophic for anyone in charge of a project or business, as that person is also in charge of safety.

According to Buys (1994), the same behavior that created the situation prevented the manager from seeing the actual facts through the defenses he had built:

One of the unique characteristics of management isolation is its subtle, imperceptible appearance in the organization. More and more accidental losses could start occurring. Housekeeping and order could worsen. When a manager realizes that he has lost contact, the process is often irreversible. In fact, he can be the cause of it through his own natural behavior. (p. 3)

Referring specifically to the measuring of the health and safety culture, the Health and Safety Executive (2001) states:

The health and safety culture of an organization is an important factor in ensuring the effectiveness of risk control. The health and safety management system is an important influence on the safety culture, which in turn impacts on the effectiveness of the health and safety management system. Measuring aspects of the safety culture therefore forms part of the overall process of measuring health and safety performance. (p. 14)

By carrying out safety inspections, the actual condition of the workplace and the ongoing activities of employees are now measured against the accepted safety standards. What gets measured gets done, and if there is no formal system of measurement, then management does not know how well the system is doing compared to its own standards and best practice.

EVALUATION OF CONFORMANCE

Depending on which measurement method is used, the results are now quantified in the form of a percentage allocated, marks given, or a ranking established. Safety audits, both internal and external, evaluate compliance with an organization's standards, and scores then indicate whether there is a deviation from the prescribed standards set. The allocated scores also monitor improvement in the safety system and give a compliance percentage. Traditional safety only used injury and severity rate numbers to measure safety. Putting a score on the effort put into safety is far more beneficial, meaningful, and proactive. Any score less than 100% means that the objectives set by the standard have not been met and more action is required.

CORRECTIVE ACTION

The amount of corrective action will be proportional to the amount of deviation from standards set. Corrective action may involve enforcing the safety standards and taking the necessary action to regulate and improve the methods.

Once again, standards are established for these corrective actions, and these standards state who must do what by when in order to get the situation rectified. Corrective action must be positive, time related, and assigned to responsible people. Following up on the completion of identified actions is vital.

COMMENDATION

Commendation is when a manager pays compliment and expresses gratitude for adherence to an achievement of preset safety standards. If employees are not recognized for participating in the system their enthusiasm will soon wane.

Safety should be considered in every management plan and integrated into every action a manager or employee takes. Make the business case for safety and work to get everyone involved. You will help move your organization towards a safer, more productive, and more effective culture. (Friend, 2012, personal communication)

IMPLEMENTING A SAFETY MANAGEMENT SYSTEM (SMS)

The health and safety management system is the process which turns uncontrolled hazards to controlled risks. The key elements are:

- Safety policy statement
- Organizing
- Planning and implementation
- Measuring performance
- Audit and review (HSE, 2001, pp. 11–12)

The purpose of a safety management system is to assist management in developing and operating a system to prevent and control accidental loss, get managers and employees involved in safety activities, and increase the effectiveness of operations within the organization. A system also defines safety authorities, responsibilities, and accountabilities and sets standards for various aspects of safety, health, and environmental protection.

ESTABLISH SAFETY SYSTEM OBJECTIVES

Management must formulate objectives to guide the system's development. Objectives should be to:

- Gain and maintain support for the system at all levels
- Motivate, educate, and train employees to recognize, correct, and report hazards in the workplace
- Engineer hazard control into the design of machines, equipment, and facilities
- Inspect and maintain machines, equipment, tools, and facilities
- Incorporate risk control into training, techniques, and methods
- Comply with safety and health standards
- Comply with safety and health legislation
- Identify and eliminate risks on an ongoing basis
- Ensure contractors and site visitors adhere to the safety system requirements

All safety objectives should be specific, measurable, attainable, time bound, and relevant to the end goal. Objectives such as “injury-free” or “accident-free” do not meet these requirements, nor do objectives such as “zero injuries” and “zero harm.” Safety objectives must be reasonable, as achievement of set objectives creates motivation to achieve even greater heights. Objectives such as “injury-free” can never be realistically achieved and lead to nonachievement and disappointment rather than the desired inspiration of goal attainment.

ESTABLISH A SAFETY AND HEALTH POLICY STATEMENT

Management must develop a written safety and health policy statement. The policy document must be issued and signed by the safety leadership team and should be communicated to all employees in the following manner:

- On joining a company each employee should be handed a copy.
- Copies must be posted throughout the plant, to serve as a constant reminder of management commitment.
- The policy can be incorporated into the employee safety handbook.
- Orientation training should involve reviewing the safety policy.

The policy statement should state the following:

- The importance management places on the safety, health, and well-being of employees
- Management's commitment to safety and health
- The emphasis management places on efficient operations, with accidental losses being kept to a minimum
- Management's intention of integrating risk assessment and control into all operations and to comply with acceptable standards and legal requirements
- The necessity for active leadership, direct participation, and enthusiastic support of management
- The participation of employees in safety activities
- Ongoing improvement strategies

A safety and health policy statement has many advantages and is a clear indication to employees that management is serious about their safety and health. This is the guiding document upon which the safety system is created and maintained.

ASSIGNMENT OF RESPONSIBILITIES

SANS OHSAS 18001:2001 recommends the following concerning occupational health and safety (OH&S) responsibilities:

Top management shall take ultimate responsibility for OH&S and the OH&S management system. Top management shall demonstrate its commitment by:

- a) ensuring the availability of resources essential to establish, implement, maintain and improve the OH&S management system;
 - b) defining roles, allocating responsibilities and accountabilities, and delegating authorities, to facilitate effective OH&S management; roles, responsibilities, accountabilities, and authorities shall be documented and communicated.
- (p. 8)

Responsibility for the safety management system can be assigned to various levels.

Management

Ultimate responsibility for safety and health rests with top management, whose functions are to:

- Develop a policy statement for safety and health and set safety system objectives
- Bring operations in line with applicable legislation and acceptable standards

- Delegate authority, responsibilities, and accountability to employees and management at various levels in the organization for certain aspects of the safety management system
- Ensure that safety and health information is an integral part of training and operations
- Ensure that contractors comply fully with company and other applicable safety regulations
- Maintain an industrial hygiene monitoring system
- Set a good example by attending safety and health meetings and take action on accident reports

Department Heads

The various departments heads' safety responsibilities are to:

- Implement and maintain uniform safety and health standards in all areas of responsibility
- Provide adequate risk control measures
- Ensure machinery, equipment, and tools are properly used and maintained
- Investigate accidents and near-miss incidents and take corrective action
- Enforce rules, regulations, and procedures in all areas of responsibility
- Include hazard information in on-the-job instruction and training
- Participate in safety and health committee activities

Supervisors

Frontline supervisors have the greatest opportunity to manage safety, as they are normally at the workplace where the work is carried out. They are key to a safety culture change and are expected to:

- Educate and train subordinates in methods and techniques on safety and health
- Ensure a safe and healthy workplace free from risk
- Stop unsafe operations and take immediate action
- Furnish employees with personal protective equipment, instruct them in the proper use thereof, and ensure that it is worn
- Actively participate in safety and health committees
- Supervise and evaluate workers' performance in terms of safety and health
- Take corrective action when safety and health rules are broken
- Enforce good housekeeping practices
- Investigate all accidents and near-miss incidents

Employee Representatives

Employee representatives should:

- Inspect the workplace regularly
- Encourage workers to comply with appropriate regulations
- Report safety and health hazards to the supervisors

- Participate in accident and near-miss incident investigations
- Represent workers on safety and health committees

Employees

Employees are exposed to the risk of the workplace, and their participation in the safety system creates participation that leads to buy-in to the safety system standards and requirements. Employee behavior cannot change the safety culture of an organization, but the organization can change employees' behavior by involving them in the safety activities. This change from being on the sidelines to being involved in safety is what brings about a safety culture improvement.

Employee duties within the safety system include:

- Working according to safety and health standards and procedures
- Observing safety system standards, health rules, and regulations
- Reporting hazardous conditions and unsafe practices
- Developing and practicing good habits of hygiene and housekeeping
- Using personal protective equipment properly and maintaining it in good order
- Reporting all injuries and near-miss incidents
- Assisting in developing safe work procedures
- Making suggestions for improving safety conditions and procedures

Health and Safety Representatives

Health and safety representatives are employees appointed to assist and participate in the ongoing safety system in an organization. The more people involved in the safety movement, the better. Appointing health and safety representatives gets this involvement and also increases the safety inspection capacity of the team. The more people inspecting for safe conditions, the safer the work environment will become.

Health and safety representatives have often been referred to as the eyes and ears of management, as they are concerned with safety at the point of action. Although both management and employees are proportionately responsible for safety within an organization, management cannot be at all the workplaces at all times, and therefore need help. The health and safety representatives are the ideal people to assist management in identifying and reporting risks in the workplace. Other hazards, which may lead to losses, are also identified and reported by them.

Health and safety representatives are employees who are appointed, nominated, or volunteer to assist in the promotion of safety to ensure a safer workplace. Health and safety representatives contribute greatly to the health and safety of the workplace and assist in the identification and elimination of hazards.

They are also important for liaison between various employees and also between the employees and different levels of management. Health and safety representatives are basically part-time safety advisors. They are an extension of the safety department's capabilities and help them in their job of coordinating the safety system.

Who Can Be Appointed as a Health and Safety Representative?

Anybody can be appointed to this position, but in most cases they are selected from a work area, and represent that area or division. They are the employees most familiar with the machinery and the process of their particular workplace, and are therefore ideal candidates to identify high-risk conditions and practices within that workplace.

In some instances, worker unions nominate and appoint full-time health and safety representatives as their formal nominated persons to coordinate the activities of the safety system and also to negotiate on their behalf.

Training

Most newly appointed health and safety representatives attend a one- or two-day training course that teaches them basic safety philosophy and also helps them identify the various accident types, the basic high-risk conditions, and the basic high-risk acts. This training also enlightens them as to how accidents are caused, as the cause and effect of accidental losses is normally explained in detail during this training. Once the basic safety training has been completed, health and safety representatives can carry out their functions with reasonable success.

First aid training is always a good investment, and health and safety representatives should be taught the basics of first aid and could also be put in charge of the decentralized first aid boxes.

Health and safety representatives who have received specific accident investigation training could be used to assist in accident and near-miss incident investigations. Since they will be conducting both formal and informal inspections, a training session in auditing techniques will help them to audit safety standards in their own areas.

Duties and Functions of Health and Safety Representatives

Health and safety representatives are a vital component of a structure safety management system. Since they operate on the shop floor, they have the opportunity to identify and eliminate risks before any loss occurs. Their duties and functions could include:

- Inspecting the workplace, including any article, substance, plant, machinery, or health and safety equipment at that workplace, on a monthly basis with a view to the health and safety of the employees.
- Presenting a written inspection report to management after each inspection.
- Ensuring that the deviations reported are rectified by ongoing follow-up.
- Attending meetings of the health and safety committee and also accepting nomination on this committee.
- Identifying hazards and near-miss incidents that have potential to cause injuries.
- Constantly reviewing the effectiveness of the health and safety measures in place within their organization.
- Assisting management to investigate and examine the causes of accidents that occur.
- Investigating any complaints by employees concerning their health or safety.
- Making presentations to the employer or the health and safety committee concerning hazards and threats to people's safety and health.

- Participating in ongoing safety audits.
- Attending formal accident inquiries.
- Presenting safety talks to employees.
- Assisting in motivating employees to work safer.

Advantages of Appointing Health and Safety Representatives

- More employees are involved in the safety system, and participation leads to motivation of the employees concerned.
- The safety of the workplace is improved by having health and safety representatives carry out regular safety and health inspections.
- The hazards of the process and work area are constantly being identified, rectified, and monitored.
- Committees are kept alive and participation is ensured.
- The workforce is represented on safety committees and is kept informed of the progress of the safety system.
- They assist in accident investigation and help to determine the basic accident causes.
- Follow-up action to prevent further accidents is constantly monitored.
- They carry out personal safety contacts with employees.
- Open safety communication is ongoing between the employee and the employer.
- Near-miss incidents and damage accidents are identified and reported to health and safety representatives.

Safety Practitioner

The safety practitioner could be the safety coordinator, safety manager, or similar title, and is the person who coordinates the safety activities of the safety system and plays an important role in the safety culture-building process.

Job Purpose

- To guide, educate, train, and motivate all levels of management, unions, contractors, and the workforce in the techniques of accident prevention/occupational hygiene and environmental control, in an ongoing effort to reduce risk to an acceptable level in order to prevent injury and illness to employees, damage to property, and environmental harm.
- To implement the safety system, including the environmental management system (EMS), in his/her areas of responsibility and offer support to management, unions, and workers concerning the safety system.

Main Functions of the Safety Practitioner

- Report to manager(s) of areas of responsibility, once per week.
- Report to head of safety on safety and occupational hygiene matters once per week.
- Must be knowledgeable on safety, health, and environmental regulations, policies, and standards.

- Coordinate and ensure the implementation of the safety system in his or her respective department and/or area of responsibility.
- Conduct 6-monthly audits using all elements of the safety system.
- Be responsible and accountable for maintaining the safety element files.
- Must be knowledgeable and proficient on all aspects of the safety system.
- Coordinate the design and participate as a resource in safety committee meetings.
- Be active participants in disabling (lost-time) injury and high-potential near-miss incident investigations.
- Advise all levels on safety, health, and environmental regulatory compliance requirements.
- Work with health and safety representatives, managers, superintendents, supervisors, and employees to ensure proactive safety goals are met.
- Ensure the completion of monthly risk assessments (all types) in his/her area of responsibility, and follow up on corrective action.
- Coordinate recognition/suggestion/observation schemes in areas of responsibility.
- Devise, implement, and follow up safety, health, and environment (SHE) suggestion schemes for areas of responsibility.
- Monitor company goals and safety system compliance in areas of responsibility and report deviations to management.
- Review and sign off all accident investigation reports—ensure follow-up action has been taken.
- Ensure that all procedures and policies are complied with.
- Coordinate incident recall sessions.
- Write monthly reports on the status of the company safety system for each department in areas of responsibility and circulate to his/her management and the head of safety.
- Test and document deviations of critical systems weekly; for example:
 - Lockout, tag-out procedures
 - Permits (confined space and hot work)
 - Lifting gear
 - Fall protection
 - Contractors
- Coordinate and conduct contractor training, and maintain required documentation.
- Coordinate with the relevant manager of the contractors to ensure that inspections of work conditions and behavior are done and that precommissioning/preacceptance inspections are carried out.
- Meet with each manager in his areas of responsibility, monthly.
- Support departments in identifying their critical tasks and help in the writing of the job safety procedures (JSPs).
- Perform one planned job observation per week (critical task) with supervisor.
- Write a monthly summary of unplanned losses and identify basic causes.
- Provide graphs for departments in areas of responsibility.
- Be knowledgeable and responsible for the accuracy of the following information:

- Disabling injury incidence rate
- Disabling injury severity rate
- Accident ratio
- Property damages
- Near-miss incident reports and follow-up actions
- Housekeeping competition scores
- Number of observations reported
- Assure that all safety-related reports (as required) are completed in a timely manner.
- Disseminate all SHE-related material such as standards, newsletters, policies and procedures, etc.

Industrial Hygienist

The industrial hygienist (IH) is a specialist who identifies risk arising from the processes at a workplace and recommends control measures to protect the health of employees. The prime function of the IH is to identify, evaluate, and control health hazards.

Medical Personnel

- Advise and guide on health standards and practices.
- Educate employees on health standards.
- Assist with industrial hygiene sampling.
- Implement and coordinate a health program.
- Provide emergency medical care for employees injured or becoming ill while on duty.
- Promote mental health.
- Assist in placement of personnel by performing pre-employment medicals.

Safety and Health Committees

- Assist and advise management and employees on matters pertaining to safety and health in the plant.
- Perform essential monitoring, investigation, and evaluation of tasks that are safety and health related.
- Serve as a forum for discussing changes in regulations, processes, and potential new hazards.
- Allow employees to communicate safety and health-related matters directly to management.

Contractors

Contractors coming on site should be subject to the safety rules and regulations of the organization and should be regarded as an extension of the workforce. Prior to allocating any tender or contract, an organization should call for the contractor's *safety case* (its proposed safety program and actions) to be submitted. This document should contain the contractor's safety policy, a list of responsible employees, a set of the safety standards that it operates to, and a record of its past safety experience. It should spell out in detail how the contractor intends to achieve legal compliance and

how it intends to carry out the work on site in a safe and responsible way. The safety case should confirm items such as:

- Legal safety appointments
- Site safety responsibilities
- Risk assessment processed
- Safety training of employees
- Site inspection regimes
- Safety induction for new hires
- Standards for fall protection, excavation

Contractor Committee

The contractor and hiring organization should set up a joint site safety committee represented by the contractor and management of the hiring firm. This should be a forum for joint consultation on safety issues during the duration of the contract. Inspections of the work site should be regular, and any deviations from accepted safe practices should be brought to the attention of the contractor immediately.

Visitors

Visitors, vendors, or other consultants coming onto the plant site should be made aware of the safety requirements of the organization. Some form of security control at the entrance gate will help control who comes into the plant and also regulate the number of outside vehicles entering the site. This is normally done for security purposes and also helps with the safety of visitors to the plant.

Visitors should always be accompanied by employees hosting them, and these hosting employees are responsible to ensure the visitor is equipped with the correct personal protective equipment (PPE). A visitor should also receive a 15-minute safety briefing on the hazards of the areas to be visited as well as the do's and don'ts of that particular area. These briefings are a vital part of the safety system, and no exceptions should be allowed. Often senior management tries bypassing the system when the chairman or other executives visit the plant. This should not be done, and if the chairman must wear a hard hat when walking through the plant, this should be enforced. This is what a safety culture is.

DEVELOPING SAFETY SYSTEM STANDARDS

The most important part of implementing a safety system is that once authorities, responsibilities, and accountabilities have been established, standards that are the guidelines for risk identification and control should be established. Standards are established for items and areas that could be areas of potential loss. A safety system should comprise at least 70 standards, which exclude the permits, forms, and checklists that are required to meet the standards. Standards should be set *inter alia*:

- Authority, responsibility, and accountability
- Housekeeping
- Machine safety

- Environmental controls
- Industrial hygiene monitoring
- Hazard reporting
- Safety committees
- Safety appointments
- Electrical safety
- Motorized transport
- Permit systems (confined space, etc.)
- Risk assessment
- Internal and external audits
- Safety training
- Accident and near-miss incident reporting and investigation
- Fire prevention and protection
- Injury, property damage, accident, and near-miss incident statistics
- Safety practitioners' functions

The standards should clearly define who must do what and within what time frame.

HOW DOES A SAFETY SYSTEM IMPACT SAFETY CULTURE? (FIGURE 13.1)

MANAGEMENT

Once a formal safety system is in place, managers are clear on their safety role and responsibilities. They are participants in safety that is facilitated by them being a member of the safety leadership team committee or other safety committee on their level. Their job descriptions also contain their safety duties, actions, and functions. Often performance ratings are linked to key performance areas that are proactive safety activities, such as scoring 90% or more on monthly housekeeping inspections, achieving an internal safety audit score of 85%, etc.

HEALTH AND SAFETY REPRESENTATIVES

The health and safety representatives report to their managers on a monthly basis highlighting physical and behavior risks noted in their area of control. They also report to management on near-miss incidents or accidents that need attention and investigation. Minutes of the safety subcommittees are forwarded to the manager for action to be taken on items when necessary.

FIRE DRILLS

Managers and employees both participate in the regular fire drills and may be members of the same fire team. Firefighting training required by the safety system is also a good opportunity for team building between employees and managers at all levels.

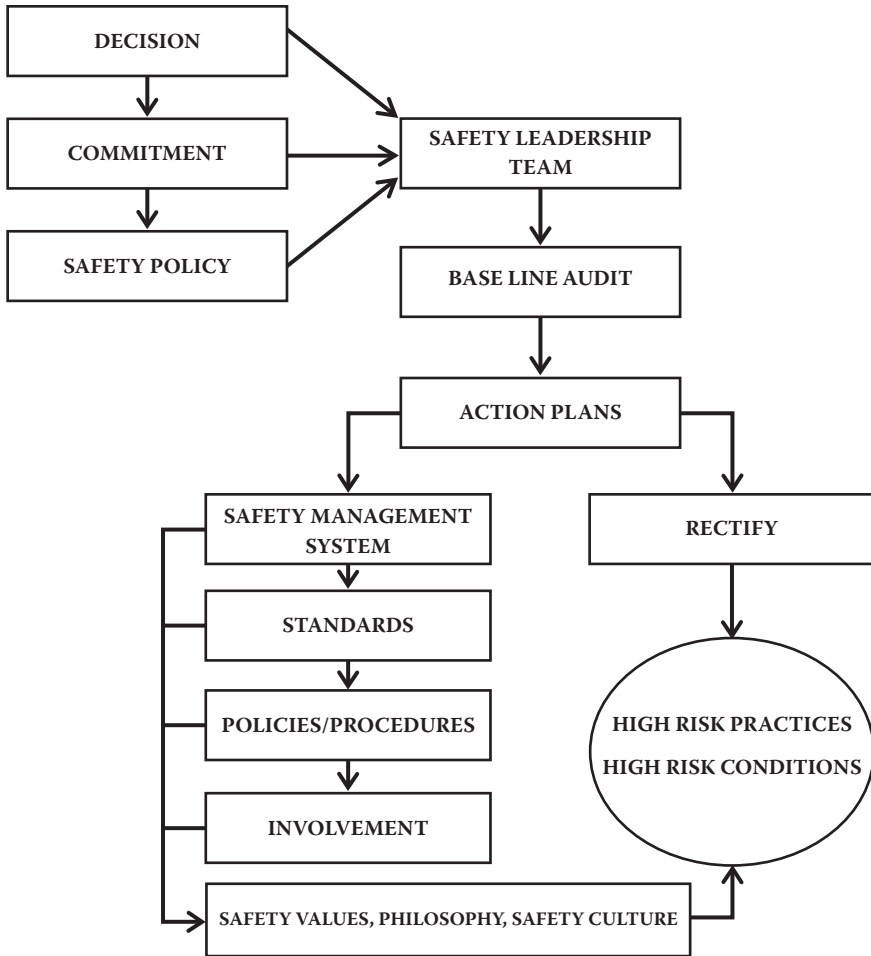


FIGURE 13.1 How a safety system impacts safety culture.

WORKPLACE INSPECTIONS

The system calls for regular workplace inspections by managers, which is an ideal opportunity for leaders to get down to the shop floor to meet and discuss safety issues with workers there. It forces managers to see the workplace as it is, and as required by the system, the inspection’s purpose is to identify and eliminate work risks. Employees see management as an active participant in the safety process, and this makes them more confident to partake in safety practices and become involved in reporting hazards and make suggestions to improve safety in their work area.

SAFETY TRAINING

The safety training given to managers and employees may have been the first that they have attended in their careers, besides the training required by local safety regulations. People are afraid of the unknown and normally steer clear of what they do not understand. This happens with safety. Once people are trained in safety techniques, they understand what safety is all about and are no longer afraid to participate and get involved. This is a major boost to the safety culture. The safety orientation for new hires, contractors, and visitors to the site immediately creates an impression that the organization is serious about safety. It sets the tone and delivers a powerful message about the safety culture of the organization.

EMPLOYEES

The proactive activities required by the safety system change the way safety is traditionally viewed and managed. Once employees see that effort is directed into proactive activities, and that the sole focus of safety is not them and the injury rate, they feel confident to become a part of the process. Getting employees on board is a major change in safety culture, and normally one of the biggest hurdles to overcome. When employees see that the executive has signed a safety policy, meets monthly to direct the safety of the workplace, appoints employees as health and safety representatives, does plant inspections, and has safety as part of its personal key performance areas, then they know that safety is part and parcel of the organization, and that is an indication of a positive safety culture.

STANDARDS

Having standards for each element of the safety system means that safety issues are documented and the requirements are clearly spelled out. Both managers and employees prefer safety directives and policies in writing so that expectations at all levels are clearly spelled out. Safety standards commit the organization and its members to carry out certain safety activities on a regular basis, and who must perform the activity and what the required result is are clearly laid out in the standard. Having committed the organization and its members to specific standards creates the foundation of the company's safety culture—its safety personality.

BUSINESS ORDER

Having employees work in a neat, clean, and orderly work environment constantly impacts their attitudes toward safety, and this pristine workplace becomes the way the organization operates—cleanly, orderly, and safely. No amount of behavior modification or observations can affect the attitudes of employees more than letting them operate in a neat and tidy work area where everything is in its place and there is a place for everything, all the time.

ROOT CAUSE ANALYSIS

The safety system requires permits and procedures for certain critical tasks, as well as specialized training for employees who execute these tasks. These tasks are also determined by standards, so each team member knows exactly his or her role in carrying out these tasks. Employees also participate in accident and near-miss investigations, which creates transparency and helps to eliminate the fault-finding that can occur during an accident investigation. The system requires the root causes of the accident and the system failure to be identified rather than just what the employee did wrong, as is traditionally the case. This approach improves the root cause analysis process and helps reveal the true causes of the event, as there is less cover-up brought on by the fear factor.

SAFETY CULTURE BUILDING BLOCKS

Every element of the safety system forms a building block of a strong safety culture. The system demands action and reaction in terms of safety, and these actions become integrated into the day-to-day activities of the plant or mine, and this culmination of actions, activities, and norms is the safety culture. The requirement of the structured safety system creates and maintains safety culture.

CHANGING THE CULTURE

Changing a workplace safety culture does not call for great sacrifices, duties, or major upheavals, but is brought about by small changes, and these small changes are what make big differences.

The leadership of the organization is the key to bringing about small changes in the way safety is managed at the workplace and, by taking an active lead in safety, can shift the safety culture.

Management is sometimes inclined to concern itself with “more important matters” and rely on others to be its eyes and ears. Safety is delegated to the safety department, which gives management only the good news and quotes improving figures. Management gets bogged down in its own daily routine and is unaware of the fact that the informal organization (what actually happens on the shop floor) is formulating its own objectives that are, in many cases, not in line with those of the organization itself.

CONCLUSION

Every change to the way safety was managed in the past contributes to the building of a stronger safety culture. Every safety meeting held reinforces the safety communication chain that is vital for safety success. The appointment of employees into positions of responsibility for safety, recruits them as safety advocates who are experts in their field and who know what risks need controlling. Involving the workforce means recruiting employees as safety disciples who are willing to indicate to leadership where the system weaknesses lie. Talking to employees will reveal the

dangers of the operation, and those same employees will be able to offer solutions to those dangers. This may never have happened previously because employees' concerns were dismissed by peers and management in the past.

Safety inspections by members of the workforce appointed as health and safety representatives are reviewed and signed off on by managers, stating that they have been notified of the deviations from safety standards and have rectified them. Once these controls operate in a neat, clean, and orderly work environment, a positive climate of safety will exist that will become the safety personality of the organization. This ongoing process involves employees and managers and constantly identifies and eliminates possible accident causes via means of involvement, participation, and safety leadership.

14 Steps toward Shifting the Workplace Safety Culture—Part 5

This chapter discusses the following components of safety culture change:

- The safety department
- Duties and functions of the safety practitioner
- Security
- Occupational hygiene
- Appointing champions for change
- Safety and health representatives

INTRODUCTION

In discussing changing workplace safety cultures, Mark Friend (2012) was asked if safety was really *first* and if it should be promoted as *first*. He replied:

“Safety first,” may be heard around the water cooler or at the beginning of a new job, but is it really? Should it be? It is difficult for business organizations to put safety first, but safety can be considered in every management plan and integrated into every action a manager or employee takes. What causes an organizational culture to move in this direction and how does the shift occur? This is what safety culture change is all about. (personal communication)

The next question posed to Friend (2012) was, “In a safety culture change intervention where does safety belong?”

Business organizations typically operate with line and staff personnel. The line is responsible for carrying out the primary mission of the organization. In a sales organization, the line sells. In a manufacturing organization, the line makes the product. Authority in the organization flows through the line from the owners through the managers to those actually doing the work. They work because they have the authority to do so and are rewarded accordingly. The CEO (Chief Executive Officer), the managers of the line functions, and the workers themselves are all considered line personnel. In order to keep things running smoothly, line personnel hire staff to support what they do.

Staff functions typically operate in a supportive role by offering advice to the line personnel. The line can accept or reject the advice based on the rationale provided, because the line has the true authority. There are often exceptions to this relationship, but this is how most companies operate. Safety usually emanates primarily from a staff

position within the organization. The safety professional recommends to line management that things be done a certain way and line management will either accept or reject the recommendation based on their own perspective and the rationale provided.

The safety professional will be in the strongest position to positively affect the safety culture if he or she is close to the top manager. The further down the organization a safety professional operates, the less influence he or she will have. Management ultimately makes the decisions. The more critical the decision, the more likely it is the decision will be made near the top of the organization. Those decisions are affected by input from others and the further down the organization the safety personnel are placed, the more filtering of upward information will occur and less influence will be exerted. It is critical that the safety professional be placed near the top of the line organization in order to have optimal input. The ideal relationship would be to have an advisory relationship with the CEO with no intermediate personnel. (personal communication)

THE SAFETY DEPARTMENT

As stated by Friend (2012), the safety practitioner and his or her department will play a major role in changing the safety culture. However, change must also take place within the safety department. They should also be aligned with up-to-date loss causation theories and let go of the paradigm that the majority of accidents are caused by the behavior of the workers.

The function of all safety departments and personnel should be to guide, educate, train and motivate all levels of management, workers, and unions in the techniques of accident and disease prevention and to advise and coordinate the safety system (GETMAC). This should be a staff function and not a line function. All employees have some safety responsibility but management, senior and line, have ultimate safety authority therefore is ultimately accountable for safety. The safety department cannot, and should not, be held accountable for the safety performance of an organization. This has been stated in numerous instances by a number of safety authors, yet safety departments traditionally drift back to managing the safety of others. (McKinnon, 2012a, p. 44)

INDUSTRIAL SAFETY AND HEALTH NEWS (ISHN) WHITE PAPER SURVEY (2005)

In the 2005 survey, which was a follow-up to its 1995 White Paper survey, the ISHN reported the following information concerning the role of the safety professional:

Job descriptions: no time for new roles

Ten years ago, 58 percent of readers said improving technical skills was a priority; 45 percent said they would be working on improving compliance skills.

For all the talk about pros shifting from compliance cops to in-house counselors, few readers seem to have the time for new roles. Tradition still holds sway. In 2005, 38 percent will devote more time to training, 36 percent more time to technical issues, and 27 percent will put more emphasis on enforcing compliance. Twenty-two percent say they will work more on being "change agents," 22 percent will delegate more, and 22 percent will spend more time as executive advisors. (ISHN, 2005)

The small number who indicated that they would work more on becoming change agents are on the right track. A safety professional cannot force safety or police safety, but should assist and guide management to change the way safety is practiced by helping shift the culture.

DUTIES AND FUNCTIONS OF A SAFETY PRACTITIONER

The main objective of the safety coordinator is to manage the numerous activities that constitute an integrated safety system. He or she has various duties and functions, mostly to do with maintaining the momentum of the safety system. They include:

- Formulating, administering, and where necessary, making changes in the safety system to ensure its effectiveness
- Reporting to senior management on a regular basis as to the state of the safety system
- Coordinating the organization's safety effort by advising, supporting, motivating, and communicating to all people, both management and employees
- Liaising with prominent safety organizations to exchange information and to ensure the technology used in the organization is up to date in terms of international standards
- Ensuring that the legal requirements concerning occupational safety and health are complied with, and advising management accordingly
- Seeking the necessary help and advice from authorities and organizations on safety
- Helping foster a positive attitude toward safety
- Helping set standards for safety elements and safety equipment
- Controlling or supervising the fire prevention and protection activities on the site
- Developing an accident, near-miss incident, and injury recording system, and assisting in the investigation of accidents and near-miss incidents
- Promoting the forming of safety committees, and acting in an advisory capacity to these committees while filling the post of secretary
- Communicating with the organization's medical team to ensure that pre-employment and ongoing medical examinations and other tests are carried out
- Working with the human resources department to advise on the correct selection and placement of staff
- Carrying out regular inspections to identify hazards
- Assisting in the training of health and safety representatives and accompanying them on inspections to offer assistance, guidance, and help
- Participating in the ongoing audits of the safety system and ensuring that management completes a full audit on a semiannual basis
- Arranging visits to other top safety companies as part of the safety educational process
- Assisting in compiling the safety report for management
- Participating in, and making recommendations for, the creation of new buildings and construction of plant or machinery

- Coordinating the safety suggestion schemes, and managing the safety web-site and other communication systems
- Compiling and circulating injury, damage, and loss statistics on a regular basis
- Ensuring that a committee or team compile, print, and distribute the safety newsletter regularly
- Disseminating the latest safety technology

The task for the safety department is to support the change process, according to the article “Cultivating a Safe Attitude, Gaining Management Commitment”:

Once you have gained the corner office’s commitment to a safety culture, everything just takes care of itself and health and safety nirvana is achieved. Sorry, but this is just the beginning of the challenge. The really tough task lies ahead. That task is to get everyone in the company to follow the directive in that corporate mission statement. Now you must create a work environment where people actually do think and act safely on the job. And a big part of the burden to champion this effort and keep it going, falls squarely on the shoulders of you, the company safety director. (Montanaro, 2007, p. 1)

APPOINTING PROFESSIONALS

When appointing safety and health department staff, management has a duty to ensure that suitably qualified and experienced practitioners are selected. Proper job descriptions based on the American National Standards Institute (ANSI) guidelines, ANSI/ASSE Z590.2-2003: *Criteria for Establishing the Scope and Functions of the Professional Safety Positions*, should be used as selection and training criteria for safety staff. These are excellent guidelines that have been compiled with the input of professional safety organizations.

The American Society of Safety Engineers (ASSE), which has more than 34,000 members, defines the scope and function of the safety professional as follows:

Scope of The Safety Professional

To perform their professional functions, safety professionals must have education, training and experience in a common body of knowledge. Safety professionals need to have a fundamental knowledge of physics, chemistry, biology, physiology, statistics, mathematics, computer science, engineering mechanics, industrial processes, business, communication and psychology. Professional safety studies include industrial hygiene and toxicology, design of engineering hazard controls, fire protection, ergonomics, system and process safety, safety and health program management, accident investigation and analysis, product safety, construction safety, education and training methods, measurement of safety performance, human behavior, environmental safety and health, and safety, health and environmental laws, regulations and standards.

Functions of a Safety Professional

The major areas relating to the protection of people, property and the environment are:

1. Anticipate, identify and evaluate hazardous conditions and practices.
2. Develop hazard control designs, methods, procedures and programs.
3. Implement, administer and advise others on hazard control programs.

4. Measure, audit and evaluate the effectiveness of hazard control programs. (ASSE, 2012a, copyright © American Society of Safety Engineers, reprinted with permission)

PROFESSIONALISM

Safety departments should be run in a professional manner. Their job is to advise management and coordinate the activities of an ongoing safety management system. They cannot improve the safety by accepting responsibility for safety. They should not directly try to influence behaviors of employees. Only management can do that.

Cooper (1998) suggests that “The status of the safety officer should be of senior level within the organization’s hierarchy and is one of the ways in which senior management can visibly demonstrate their commitment to safety” (p. 9).

SAFETY OFFICER VS. SAFETY PRACTITIONER

The traditional title for the safety practitioner was “safety officer.” This evolves from the days when safety personnel were more like police than true practitioners. “Safety officer” has the connotation that he or she has authority to police safety actions, and this is what they did years ago. Times have changed. The safety practitioner is no longer a watchdog, but a professional advisor on safety to top management.

Safety cannot be policed. Security can, and that is why security staff are called security officers or the police are called police officers, traffic officers, etc. Safety does not belong in that category any more, so a positive step toward improving the safety culture would be to remove the title *officer* from the safety staff. The safety department is not a police or security force. They should identify deviations from standards and hazards and notify the supervisor. It is the job of the supervisor, not the safety department, to give direct instructions to employees.

SECURITY

Security is a profession that is geared to protect people and assets against intentional loss. They are in fact similar to an internal police force, except that their powers are less and they operate within the limits of a corporation. Many mines and industries have large, full-time security staff to control the flow of raw materials and finished products in and out of the premises. They also patrol the premises after hours to deter would-be intruders, etc. These security guards are sometimes armed, and have authority to prevent persons from entering the factory or mine or certain sections thereof. They focus on the security of the premises and assets. They are not occupational safety practitioners and should not be confused with safety staff and their roles.

SECURITY VS. SAFETY

The functions of safety and security are distinctly different. Perhaps the only common area is that both safety and security can save the organization a lot of money. Security

prevents *intentional* losses to the organization. Safety prevents *unintentional* losses caused by accidents. If safety is to be improved, a compromise should not be made by combining the functions of safety and security. Safety should not fall under the security department and vice versa. The roles should not be combined, as safety is then seen as policing. In this setup, safety culture shift would be almost impossible.

OCCUPATIONAL HYGIENE

Occupational hygiene is the science and art devoted to the anticipation, recognition, identification, evaluation, and control of environmental stresses arising out of a workplace that may cause illness, impaired well-being, discomfort, and inefficiency of employees or members of the surrounding community. Occupational hygiene is also described as the science dealing with the influence of the work environment on the health of employees.

The objective of occupational hygiene is to recognize occupational health hazards, evaluate the severity of these hazards, and eliminate them by instituting control measures. Where the occupational health hazard cannot be eliminated entirely, occupational hygiene control methods aim to reduce the exposure to the hazard and institute measures to reduce the hazard.

OCCUPATIONAL HYGIENE STRESSES

In a work environment the employees could be exposed to numerous occupational hygiene hazards and stresses. They could include some of the following:

- Chemical hazard
- Exposure to noise
- Exposure to dusts
- Exposure to steam
- Exposure to smoke
- Exposure to fuels
- Exposure to heat extremes
- Radiation exposure
- Vibration

INDUSTRIAL OR OCCUPATIONAL HYGIENIST

The function of coordinating the industrial hygiene (IH) program is usually carried out by a suitably qualified person, as the science is complex and specialized. Industrial hygienists normally obtain a 4-year degree in IH before embarking on their practical training. This field is very specialized, so industrial hygiene should be left to the specialists. Often the safety coordinator does IH work, but being a specialized field, and depending on the type of industry, a professional is the best person for this job. Although there is a great deal of focus on injury-producing accidents, in many countries industrial diseases kill more people than accidents do.

Industrial hygienists are professionals and belong to an active association, the American Industrial Hygiene Association (AIHA), which has chapters throughout the United States.

SAFETY, HEALTH, ENVIRONMENT, QUALITY, AND RELIABILITY (SHEQR)

The current trend in industry is to lump as many titles as possible onto the safety person so that he or she becomes so burdened down with other duties that safety is neglected or not given the attention it deserves. Adding the functions of industrial hygiene, environmental control, quality and reliability, and corporate governance, inter alia, to the post of the safety professional is a good example of multi-skilling but poor management practice that detracts from the importance of safety.

While they may be important, these other functions are not the same as safety, as is often believed. They may have commonalities, but they do not demand the specific skills called for by the safety profession. The safety professional is constantly challenged with demands that require specialized skills, and adding other functions to their burden can render them almost ineffective.

PROFESSIONAL BEHAVIOR

Safety professionals should be professionals, and not generalists who accept tasks that should be allocated to other specialists in their specific fields. For the profession of safety to be respected, safety practitioners have to practice pure safety on a management level and not become manipulators of injury statistics to make the company's safety efforts look good. Much harm can be done to the image of the profession if its members do not act according to the ASSE Code of Professional Conduct.

Here is an example of a young person's entry into the safety profession that was sent to me. (Minor changes were made to protect the identity of the writer.)

I will be graduating next fall with my bachelors in safety. Right now I am doing my internship at a foundry where I live and I've begun to see many of the common misconceptions that you were talking about. Safety first, think safe, everyone is responsible for safety, etc. However, I did see a *safety before profits* poster somewhere. Obviously I have a lot of work to do at this place because it's been around since the dawn of time. The culture is really rough as some of the workers here were saying that when a worker got his foot burned at the pouring station it was dramatic as the burn was pretty serious, or when the Safety Manager who is my boss was showing me around the plant, some workers were scrambling to put on their hearing protection and safety glasses.

I think one of the reasons I was hired here is because management knows the situation with safety is pretty bad. They are organizing a safety day which could be a good thing or it could be pretty lame. Hopefully it won't be like the safety orientation that I got here (putting in the movie and then taking a test afterwards). Most of the people cheated on the test, writing down the answers after they were announced. I almost fell asleep and got a lot more wrong than I should have but I didn't cheat.

There is a lot to learn at the plant and I'm excited. I just finished my first week there. The safety manager who was hired in with me is a big behavioral safety advocate and these questions spurred from me listening to him.

Is behavioral safety good? The way it is set up here is they have SUBO cards (Safe, Unsafe Behavior Observation) and they write down either safe or unsafe acts that workers find. They are forced to do at least 1 or 2 a month. I'm just afraid that it turns into a worker catching another worker doing something wrong.

How do I go about teaching management that safety is not everyone's responsibility? I'm still a little confused by that part actually. I understand it but not enough to explain why it is true to another person. Maybe you could make it clearer to me?

I'm only 21. Most of the people who work at this place are way older than I am. How can I get them to listen to me, or even get management to listen to my suggestions as they are all older than me too? (Letter to the Author, 2011, contents slightly modified)

KEY ROLE

The safety department plays a key role in safety culture shift, and its role could determine the success or failure of the venture. Conversely, a safety department that is not used correctly could be a stumbling block in the culture change process.

In many of the top companies around the world, the safety director's position is as a vice president reporting directly to the chief executive. This clearly shows the organization's commitment to safety and supports the importance of its safety philosophy. The person in this position needs to be a professional who clearly understands the safety management process.

APPOINTING CHAMPIONS FOR CHANGE

To effect culture change, one must enlist the support of like-minded people in the organization. In every organization there are those who understand the concepts and the importance of compliance, conditions, risk, reward, and behavior. These individuals represent the best prospects for support for safety change. Remembering that safety is 90 percent politics and 10 percent work is an important political play in safety culture shifting—rallying support. Most people will never openly reject supporting any safety effort, but the sincere supporters will be those who support major safety change decisions and follow them through. Not many employees are brave enough to stick their necks out for radical change, and those few who are, are vital if safety change is to be brought about. Once a few people are on board with the safety changes, it becomes competitive, and this is what helps keep the change momentum.

Managers want to be the best, and safety competition (not based on adjustable injury rates) is one of the key ingredients in safety culture building. Internal house-keeping scores and audit scores are examples of where competitive spirits may be kindled. In the process, safety culture is being built.

THE SAFETY ADVOCATES

Since safety is 90 percent politics and only 10 percent work, the principle of the key advocate is appropriate, as it is easier to persuade decision makers when at least one person within their own circle believes in the proposal well enough to champion the cause. This means that someone within the inner circle must be persuaded to support the change in safety culture.

The positive persuasive power of such a champion may make the difference between rejection and acceptance of the need for change. If this champion happens to be an executive, so much the better for the change process. One strong supporter of change can often persuade the rest of the group to accept decisions and moves for change. However, this principle can work conversely, and instead of the key advocate there may be someone who is totally opposed to change.

Unions are a good source of safety advocates, and once they are on board the safety culture shift program, they are excellent supporters of safety initiatives.

SAFETY AND HEALTH REPRESENTATIVES (SAFETY REPRESENTATIVES)

Safety representatives are also excellent safety advocates and can be recruited from the workforce. Sometimes they are nominated from union ranks, depending on the organization. They should receive formal letters of appointment, and their roles and functions should be spelled out.

SAFETY REPRESENTATIVE STANDARD

Here follows an example of a safety system standard covering the appointment of safety representatives, including their roles and functions.

Objective

To ensure that sufficient and competent safety representatives are appointed at all work areas to promote safety and to conduct monthly inspections of their work areas.

Introduction

Safety representatives are appointed to identify hazards within their work area. Unsafe acts and conditions are the immediate causes of accidents and, if identified, reported, and eliminated, can lead to a reduction in the number of employees being injured.

Safety representatives also assist in maintaining the momentum of the safety program as a result of their ongoing inspections, and liaison with employees.

Who Are Safety Representatives?

Safety representatives are employees appointed to:

- Act as the eyes and ears for management by identifying and reporting hazards
- Assist and participate in the ongoing company safety system

- Assist in the promotion of safety to ensure a safer work area for all
- Act as liaison between various employees and also between the employees and different levels of management

Who Must Be Appointed?

Any employee can be appointed as a safety representative. They are selected from a work area and represent that area. They are the people most familiar with the equipment and the processes of their particular area, and are therefore ideal candidates to identify hazards within that workplace.

The person appointed as a safety representative should ideally come from within a work area, and he or she should be thoroughly familiar with the following in that area:

- Machinery/equipment
- Processes
- Office/work area layout
- Hazards
- People within the area

Appointments

- Appointments are made in writing.
- A minimum of 5 percent of the workforce should be appointed as safety representatives.
- The term of appointment is for 1 year.
- All safety representatives should attend in-house training on an annual basis.

Duties and Responsibilities

The duties of safety representatives vary from area to area. The following list of duties of safety representatives gives an idea of the type and nature of their functions.

- Inspect the workplace, including any article, substance, plant, machinery, or health and safety equipment at that workplace, on a monthly basis with a view to the health and safety of the employees.
- Present an inspection checklist to management after each inspection.
- Attend meetings of the area safety committee.
- Identify hazards, which have potential to cause accidents and injuries.
- Review the effectiveness of the safety and health measures in place within the area.
- Assist management to investigate and examine the causes of accidents that occur.
- Make representations to the management, or the safety committee, concerning hazards and threats to employees' safety and health.
- Participate in inspections and accompany inspectors and consultants doing inspections of the workplace.
- Participate in ongoing safety audits.
- Assist in motivating employees to work safer.

Safety Representative Training

Before a safety representative commences duties, he or she should receive the correct training required to assist him or her in carrying out his or her functions effectively.

The following categories of training are available and applicable to safety representatives:

- Safety representative's training (required)
- First aid training (optional)
- Accident investigation training (optional)
- Safety auditing (optional)
- Inspection techniques (optional)
- Occupational hygiene hazards identification (optional)
- Risk assessment (optional)
- Safety communication (optional)

CONCLUSION

A well-staffed safety department with clearly defined roles can be a source of safety culture change agents if deployed correctly. Recruiting support for safety culture shift is vital to help persuade those leaders who are not totally supportive of the change. Safety and health representatives can make a major difference in the safety culture, as they, as employees, are now allocated specific safety duties, which include inspecting the workplace for hazards and reporting to management on a monthly basis. These changes set the scene for the creation of an improved way in which the organization manages safety.

15 Steps toward Shifting the Workplace Safety Culture—Part 6

This chapter discusses the following final steps toward changing the workplace safety culture:

- Monitoring progress
- Keeping the culture
- Recognizing safety achievements
- Riding the bicycle
- Summary

MONITORING PROGRESS

PROVIDING MANAGEMENT MEANINGFUL DATA

Most managers receive daily reports about productivity, quality, and costs. Safety directors should not only provide monthly data to management, but it is recommended that a report be submitted to management every day on matters such as regulatory contacts, critical safety concerns, injuries, property damage, and near-miss incidents. Monthly reports should concentrate on long-term matters such as rates, progress toward project completion, and activities such as training, inspections, and audits. All reports should follow a standardized form and be accurate, clear, and easy to read.

SAFETY COMMUNICATION

Frequent communications regarding the safety system progress should be published in a dedicated safety newsletter, on the internal safety website, and if applicable, in the company's internal magazine.

An informal manager's monthly meeting is held by some organizations, and the meeting is opened with a safety report presented by the safety staff. This helps keep everyone abreast of the latest happenings in safety and can also be used to brief managers on progress made on accident investigations and other safety-related matters.

SAFETY SYSTEM IMPLEMENTATION TRACKING CHART

A progress chart on the status of the implementation of the safety system could be introduced and updated on a frequent basis. This chart can be used to communicate

the progress being made with the system implementation and update, which will be a continuous process. A simple chart would list all the safety system elements and have measurable criteria, such as the five noted here:

1. Has a standard been drafted?
2. Has the standard been approved, signed, and circulated?
3. Has training been given on the requirements of the standard?
4. Is there a checklist or similar to be used with the standard?
5. To what degree has the standard been implemented?

A simple 0 to 5 ranking scale can be allocated to each of the progress questions, and a total score can be calculated as a percentage of completion. When applied to the entire system, the individual and total scores will give an overall picture of the safety system implementation progress. This progress report should be included in various safety reports and communications.

ANNUAL REPORT

The organization's annual report should also feature a section on safety, health, and environmental (SHE) matters. The report should be prepared by the safety department but presented by the CEO. The report can include a safety progress report, damage, near-miss incident and injury statistics, numbers of employees trained in SHE techniques, and other relevant information.

KEEPING THE CULTURE

CHANGE OF MANAGEMENT

Safety culture can change with a management change. Bearing in mind that employees give attention to what managers give attention to, a change in the executive leadership could bring about a change in focus on safety. It is therefore imperative that the new manager or management team be briefed on the status of the safety culture as soon as they take office. Normally they are briefed by all departments, but seldom does the safety system briefing take place. It is important to bring the new players on board as soon as possible so that there is continuity in the safety culture.

A short presentation on the safety status and safety system would be a good idea, as safety has more need to be sold than other concepts. The presentation could highlight the activities that play a role in the system, the benefits of the existing culture, and what it would mean to the incoming leaders or new team. Their role and expectations should also be spelled out during the presentation. Managers like it when divisions are organized and tell them what is happening, rather than them having to ask.

CHANGE IN THE SAFETY DEPARTMENT

Major changes in the safety department could also upset the safety culture or halt the change process entirely if the department is influential enough. Bearing in mind

that they play a vital and leading role in changing and maintaining the safety culture, personnel changes should be carefully orchestrated and monitored. Again, it is emphasized that the safety department's total commitment to a positive safety culture is vital if there is to be any improvement on past safety experience.

RECOGNIZING SAFETY ACHIEVEMENTS

Go out of your way to give credit to those who deserve it. Thank them for their efforts. Expressing appreciation is the best way to ensure that you get the same level of effort the next time. Small safety change successes must be rewarded and recognized, as safety is a people's game and people love to be recognized. Maintaining safety system momentum may be even harder than the initial establishment of the system. Recognition and reward schemes help keep employees and managers interested in the safety work they are doing.

Some successful organizations send a team of outstanding safety achievers to the annual safety congress as recognition of their contributions to safety during the year. This is a hot contested prize and keeps employees involved in safety all year around.

A peer recognition award card is a good idea. Supervisors can issue this card to anyone they feel is doing a good job at safety, and the cards are entered into a monthly drawing for movie tickets or similar. One organization had a card called the gold card, which was also awarded as a recognition and which could be traded at the local supermarket. None of these awards were based on accidents, injuries, or injury performance, or for being injury-free. These awards were because employees were caught doing something *right*.

GETTING EMPLOYEES INVOLVED

One general manager had two employees who resisted all changes made to the safety in their department and almost refused point-blank to clean up their work areas and participate in safety activities. Eventually, and in desperation, the general manager nominated them to attend a safety and health congress in the neighboring state. They were registered for the congress, plane tickets and accommodations were booked, and they were on their way. After spending three days attending safety presentations, visiting the safety and health exhibitions, and rubbing shoulders with their peers at the conference lunches and networking sessions, the two returned to the company.

According to the general manager, after the congress the two were "changed men." He said that they returned with a totally different attitude about safety and immediately started participating in the safety activities. When the general manager questioned them as to their change of heart, they both replied, "Before attending the congress we thought that our company was the only one messing around with this safety business. At the congress we discovered that safety was not happening just here, but many companies like ours were implementing safety rules and procedures. It was not just us. We also learned that we, the employees, are the ones who benefit most from a safe workplace. Both of us are now excited about what is happening in safety here and we want to be involved."

RIDING THE BICYCLE

Maintaining a positive safety culture is like riding a bicycle uphill. If you stop peddling, you roll backwards. Ongoing internal audits, as well as external third-party safety system audits, with or without international accreditation, help management ensure that the safety system is functioning according to the standards. Internal housekeeping competitions also help maintain safety awareness momentum. The leadership team must continue with their commitment to safety and the safety system and constantly revitalize any aspect of it that they feel is not functioning well.

Maintaining a positive, dynamic safety culture is not a destination, but a journey with no end.

SUMMARY

After months, sometimes years, of hard work to create and improve the safety culture of an organization, one normally asks, "How do we now measure our successes to confirm that we have changed the safety culture?" When I was asked the same question after two years of assisting to change a safety culture, I looked out the window and pointed to a general manager who happened to be driving down one of the factory roads in his luxury company car. The car approached a stop sign and came to a complete stop. A few seconds later the car passed our window and we observed that the general manager was wearing his seat belt. "That," I said, "is an indicator to me that there has been a safety culture change here. A few years ago no one, including all the general managers, stopped at our stop signs, and none of them ever wore their seat belts on factory roads. That tells me that they have now got it!"

While flying to Atlanta, Georgia, one Saturday morning on the early flight I happened to look out of my window as the luggage was loaded into the plane's hold just below my window. I saw a tug with wagons loaded with suitcases about 20 yards away from the plane waiting to pull up and be offloaded. I watched as the driver walked toward the vehicle, and I made a silent wager with myself that she would not buckle up her seat belt to drive the tug the 20 yards to the plane. Well, I lost the bet! She got into the tug, fastened her seat belt, and moved the vehicle 20 yards to our plane, climbed out, and started loading the suitcases into the hold. No one else was around at the time, so she wasn't trying to impress anyone but had followed the safety rules without fault. That's what safety culture is all about.

16 The Aluminum Company Case Study

INTRODUCTION

After having been in the safety profession for more than 30 years, including having lived and practiced safety in Arizona and Zambia, I accepted a 3-year contract as a safety culture change agent at an aluminum smelter in the Arabian Gulf. I later managed to change the duration of the contract to 2 years.

I had just returned from a contract in Kitwe, Zambia, and was prepared for another tough assignment. At the time of the interview I didn't quite realize what a tough assignment it was going to turn out to be!

The initial interview with the deputy CEO went fine, and my wife, Maureen, and I found him to be a charming person and someone really keen to make a difference in safety at the plant. We were flown to the Middle East for further interviews and to be introduced to the executive management. I was introduced to the CEO, and immediately he wanted to know my opinion on the behaviors that were the cause of the plant's accidents. I did not agree with him about behaviors being the sole cause of accidents and asked, "What about the unsafe work environment?" at which he was quite taken aback. I thought I had already talked myself out of the job!

After being interviewed by the nine general managers and the CEO, I was offered a substantial 3-year contract as manager of safety, health, and environment (SHE manager).

THE SITUATION AS IT WAS

The plant employs more than 3,000 employees and is the second largest employer in the area. It has miles of paved access roads and bicycles; contractors and heavy hot-metal haulage trucks all share these roads. It also has a massive on-site hospital and three power stations.

The first thing that struck me was that all employees were wearing bump-caps instead of the correct industrial hard hat. Next, I discovered that almost no one on site wore vehicle safety belts or stopped at traffic stop signs. I then discovered my predecessor had been the head of plant protection (security), and that the safety and security departments were one and the same. The temporary acting safety manager had been sidelined and told by the deputy CEO that he would never get the position. Little did I know that he had been placed in the position by Mohamed, the previous general manager, who was in control of the plant protection (safety) group, and who

had control of the safety department taken away from him and given to the deputy CEO. This is where the trouble began, but I didn't know this at the time.

The entire plant had only two full-time safety coordinators, and there were some part-time safety coordinators decentralized in the smelter and power stations.

SAFETY IN THE SAFETY DEPARTMENT

Safety belonged in the safety department at the company. If you needed safety glasses or safety shoes, you went to the safety department. All the critical task procedures had to be signed off and approved by the safety department. They investigated all the accidents and negotiated with the doctors to ensure injured employees were returned to work so as not to spoil the safety record.

The definition of a lost-time injury had been changed from one day off of work to three days off to better suit the organization (and to improve the spiraling injury rate)! The main focus was the 30-foot-high safety board at the main entrance to the plant that tallied the number of hours each division had worked since the last injury. I started calling it the evil record because that's what it was. It forced the organization to hide injuries to maintain the record, and thus compete with neighboring factories in safety. This was also a source of competition between the nine general managers.

TRAINING AREAS

During the first week I happened to be walking down the passage and stumbled into a massive hall, which was formed by two open areas on either side of a wide passage next to adjacent offices. This is what was used as the safety training room. I sat in and listened to one of the safety personnel give a lecture. Employees walking down the passage and passing through the room created a major disturbance while greeting each other and chatting on their way through.

The lecture was about what happens to you if you are injured at the company. One of the first things that shocked me was the overhead slide that was on the screen, which read:

That the injured:

- Could be listed as a "black sheep" by his fellow workers
- That his chances of promotion were slight
- That the perpetrator could receive a "warning letter"
- Could be excluded from training
- Could be excluded from promotion
- And a myriad of disastrous events could ...
- Better avoid a big storm against yourself in addition prevent the possibility of losing your life or part of your body forever.

After that lecture I decided that even if I were injured at work I would not tell anyone!

One of my first moves was to convert this hall into two safety training rooms with all the necessary equipment. This was met with a lot of opposition from my manager, the deputy CEO, who did not want to rock the boat. Once the construction was

completed, we had a formal opening and invited the executive team to meet and have lunch with the small safety department team. This was the first time such a meeting had ever taken place. This was also the first time that the safety team had initiated such an event, which put them on the map, so to speak.

SUPPORT OF SAFETY TEAM

Members of the safety team were fully supportive of the changes I proposed and were excited about the changes that were happening and the future. They also told me about how unhappy they had been under the leadership of Mohamed.

CULTURE CHANGE

I immediately became the deputy CEO's greatest nightmare because I started working to change the culture and implement a world's best safety system. Little did I realize he did not want to rock the boat because of the political climate between Mohamed and himself. The more safety became visible, proactive, and successful, the more it showed Mohamed's incompetence when he had run the department. I did not realize this at the time.

Very enthusiastic, I worked all weekend and sent the deputy CEO a proposal for restructuring the existing safety department into the safety, health, and environmental (SHE) department. That nearly drove him crazy because I proposed the appointment of nine new decentralized safety staff at superintendent level reporting directly to the relevant general managers (which was unheard of at the company) and the appointment of three additional centralized staff. In addition, I proposed a major restructuring of existing staff.

I also proposed a position of "shadow manager" to enable me to develop and train a local person to take over as SHE manager at the end of my tenure. To add insult to injury, I proposed that the nine decentralized safety personnel report directly to each of the nine general managers and not to the safety manager! I further proposed the appointment of a qualified industrial hygienist and the formation of the safety leadership team (headed up by the CEO with the general managers in attendance) to manage the implementation of the safety system. That same weekend I got a reply to my proposal from the deputy CEO that read, "You must be dreaming! Are you crazy?"

That's when I realized he didn't know what a safety culture change agent was or what he does! He was a lawyer, and his safety knowledge was limited to defense in a work fatality trial. That was the first time I wanted to resign.

EXECUTIVE SAFETY COMMITTEE

After a few months I managed to persuade the leadership to form the executive safety committee (the safety leadership team) chaired by the CEO and attended by all the general managers. A start was made on developing safety standards and policies, and the committee reviewed my restructuring proposals of the SHE department with skepticism (Figure 16.1).

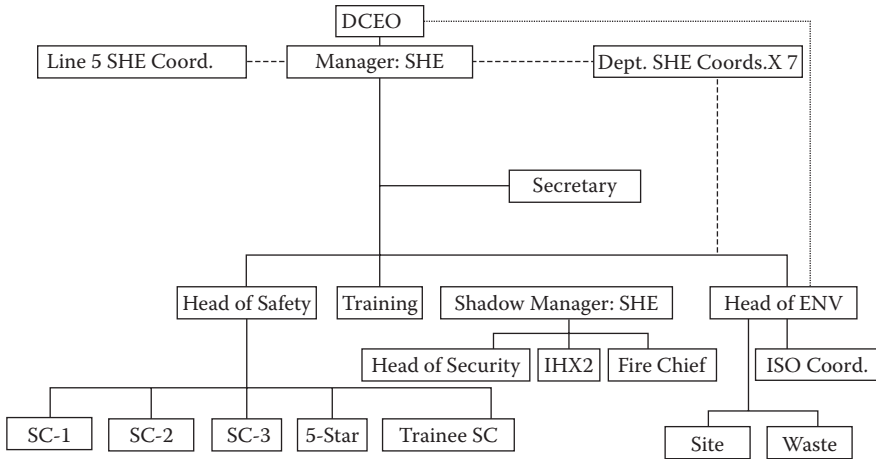


FIGURE 16.1 The proposed restructure of the SHE department.

The organization had embarked on an extensive program to train its managers in the basics of management as part of their organizational management development program (MDP). The training was to extend over a 6-month period and involved some 5 days of classroom training. When I asked about the safety component of this management training I was informed that it did not include safety at all!

The plan was to train more than 600 line managers on this 5-day program, but safety was not featured as part of the course. After discussions with the CEO, I managed to obtain 8-hour slots in this newly started management development and training project and presented 8-hour modern safety management courses to line management in this added-on time allocation. This visibility of the safety department was aggravating Mohamed and making the deputy CEO nervous, so he was trying to slow us down in every respect to quell Mohamed's envy.

Because my boss, the deputy CEO, was reluctant to support my proposed changes, I requested to report directly to the CEO, and it was agreed that I would have a dotted reporting line (an advisory role) to him and have weekly meetings with him. The deputy CEO would attend these weekly meetings as well. Things started to fall into place until I refused to sign all 1,000-plus critical task procedures (job safe practices [JSPs]). Safety had always approved them in the past and signed off their annual update. I read some. They were poor and the critical steps were not even in sequential order. Because I refused to sign them the executive leadership branded me as not being a team player and complained to the deputy CEO. I insisted that the policy be changed and that managers sign the papers, as they are the ones familiar with the tasks, the hazards, and the procedures. The safety department was not, as they had never done the tasks listed and did not know the procedures or the processes involved.

The urgency for this annual signature parade of the JSPs by the safety department was treated seriously and was a sensitive issue because a portion of the general managers' salary increment was based on this annual JSP update, as it was one of their key performance indicators.

I proposed that the wording needed changing on the policy, which stated that “the safety department” would approve all the JSP procedures. This would force managers to take on safety responsibility and monitor their own JSPs, but this proposal turned the executive management upside down and a decision could not be reached. This really caused a stir throughout the company. I instructed a safety coordinator to go and review some actual tasks against the procedures and report back to me. He did. He reported that the procedures were outdated and flawed. I went back to the executive determined to get the policy changed.

THE FIRST FATALITY

On a Wednesday morning we had the first fatal accident, when an elderly employee fell some 12 feet to his death after lying down on an overhead walkway rampart. He had apparently refused to go to the state-of-the-art medical center for medical help when he felt faint the previous day. This was the middle of summer and outside temperatures were well above 100°F. The following day he again felt faint, and was told by his workmates to get some fresh air. He lay down on a 12-foot-high walkway ledge and somehow rolled off and plunged to his death. During the investigation it became clear that he did not want to report in at the clinic because he was afraid he would lose his “summer attendance bonus.” This bonus was a fair amount of money, and the victim supported two wives and 11 children.

This shook the organization to its core, as they had not had a fatality for 32 years, and when, at the site of the fatality, I approached the CEO and asked if I could be of any help, he simply replied with tears in his eyes, “I’m devastated.”

I too started suffering from stress. With the legal inquiry and talk of the prosecution of certain managers for the fatality, and the government investigating the inspector’s statement that “the safety department have not been doing their job and have no authority,” I couldn’t sleep at night and began to have severe anxiety attacks. (They say the safety department is not responsible for safety, but wait until a fatality occurs and see where the fingers are pointed.) We were also being prosecuted for not having a formal committee for functions such as accident investigations, etc.

Things got back to normal for a while, and we made some safety progress until the second fatality, exactly one week later.

THE SECOND FATALITY

I was on site immediately after a young man had his head crushed between a moving gantry crane and three of the concrete building support columns. The collisions had left pools of blood at the base of each of three pillars as the crane had traversed the length of the building. It was obviously an accident that could have been prevented, and to top it off, the man’s father was one of the company division managers at a site a few miles away.

During the investigation it was discovered that a similar accident had happened a year previously on the same crane and in the same manner as this one. That accident had resulted in the injured person fracturing his jaw when it was trapped between the crane handrail and one of the support columns. The accident investigation report was

recovered from the file. It was incomplete and very sketchy. It had not been signed off on by the safety department because it had not been completed thoroughly.

This time the government labor inspector got angry. This time 400 employees crowded around the main gate and wailed, prayed, and cried as the ambulance with the body of their friend and colleague drove slowly out of the gate while the factory siren wailed in accompaniment. To my dismay, the driver of the ambulance, who happened to be a member of my department, was not wearing his seatbelt as he drove the ambulance out of the gate. I will never forget that sight for the rest of my life. The local press was also unforgiving about the two deaths that the company had experienced. They featured the fatalities on the front page of the evening newspaper.

MY PREDECESSORS

In delving through two piles of paperwork left in my office by my predecessors and after discussions with some of my staff, I formed a picture of what had preceded my arrival at the company. My predecessors had left me a paper trail that read like a novel. Mohamed had been in charge of the security and safety department and had gone to the UK on a recruiting mission to fill a post called loss control officer for the safety department. He had hired a very competent person who later had drafted a proposal to move the company onto a structured safety system with elements and standards, etc. Mohamed had rejected all his proposals and eventually started to pressure him into resigning, which he did. Mohamed then returned to the UK and recruited another person for the position. This person had the same vision as his predecessor and also made a number of positive proposals to Mohamed, all of which were rejected, including the recommendation to form a safety committee. This was a local safety law requirement. These two people must have been extremely frustrated, judging by the paperwork trail and computer files that they left behind. The written rejection of the proposal to form a safety committee was one of these items.

THE SAFETY COMMITTEE

According to local labor law, each workplace must have a committee established to promote safety and, inter alia, investigate serious accidents. When asked by the CEO why we didn't have such a committee I rummaged through unsigned and unfinished safety system documents that my two predecessors had left and found the proposal from one of them to Mohamed to form such a committee, and a handwritten reply from Mohamed stating that he "didn't feel it was necessary."

I handed this to the CEO, who apparently reprimanded Mohamed, who was aspiring, by the way, to become the next CEO.

That sealed my fate as SHE manager and as far as the implementation of the safety system was concerned. I didn't realize it at the time, but Mohamed was smoldering after being reprimanded by the CEO, and he was angry with me.

From that moment on Mohamed was intent on blocking all of my initiatives to improve safety at the company. He was influential in the executive meetings, everybody was frightened of him, and he managed to dissuade the rest of the executive managers on a number of safety proposals and innovations on which I needed their

support. At presentations he always questioned my motives and openly challenged me. The rest of the executives were too scared to stand up against him or to support me, so he bullied us all. I was getting tired of it.

THE SHOWDOWN

At one safety executive meeting, chaired by the deputy CEO while the CEO was on vacation, Mohamed pushed me to the limit. Everything I reported to the committee he questioned in an arrogant manner. He blocked every suggestion I made as well as a proposed project to put more than 2,000 employees through a 4-hour safety training program. This training had never been given before and would contribute greatly to our safety system and enlighten the entire workforce as to what safety was and what was expected of them.

Immediately after the meeting I asked Mohamed for a minute of his time in his office. He initially refused, saying that he was busy. I barged into his office and confronted him as to whether or not he had a problem with me and the way I was running the SHE department. He aggressively ordered me to off out of his office! This made me mad! He told me a second time, and this was when I stood my ground. "Why don't you make me?" I challenged, and promptly sat myself in one of his office chairs and put my feet up on his desk. I was really mad, and it was showtime! I was determined not to leave his office until I was asked to in a decent manner. He had been taunting me for months now, and he was blocking all the initiatives that I was proposing, so now the gloves were off!

In anger Mohamed ran to the deputy CEO's office and said that I would not get out of his office and was threatening him. The deputy CEO rushed into the office with a look of horror on his face. When he saw me sitting with my feet on the desk he buried his head in his hands and said, "Oh sh*t!" He knew this was the showdown he had been trying to avoid for a year. At this stage everybody in the vicinity was aware of what was going on. The deputy CEO (who was acting CEO) calmed him down and got me out of his office. Actually, the shadow SHE manager came in and led me out. To make matters worse, on exiting, I gave Mohamed a middle finger salute to close the conversation. This was noted by all the secretaries in the office and came back to haunt me a few days later.

Immediately Mohamed filed a disciplinary action grievance against me and demanded that the deputy CEO take action. This put him in a difficult position, as he was the one who had recruited me into the company shortly after taking over safety. I had stepped out of line, and now my boss was being requested to take disciplinary steps against me by Mohamed. I returned to the office, which was suddenly empty and very quiet, and contemplated my darkest hour. Like a slow-motion movie, the head of the union and his assistant came into my office and, without saying a word, shook my hand, embraced me, kissed me on the cheek, and left. They never uttered a word. I knew then that I was not alone and had done the right thing. They were paying tribute to me for standing up against Mohamed.

To help the deputy CEO save face and to bow to Mohamed's request of disciplinary action, I felt I had no option other than to hand in my resignation. This was the second time.

THE CEO SAVES THE DAY

The next day the CEO phoned me from Australia, where he was on vacation, and told me not to make any drastic moves and to hold on until he returned, which I did. By now the stress had gotten to me and I was experiencing sleepless nights, depression, and it felt like a band was tightening around my chest each time I even thought of work.

I was diagnosed with stress, and the doctor ordered me to lose weight, exercise more, and take up a hobby, all three of which I did successfully. I lost about 25 pounds in a short time, swam 10 lengths of the pool every night, and went for long walks over weekends. I also went on a lunch diet of cheese and crackers, a cup of soup, and an apple. I had disturbed a hornet's nest at the plant, but this had to be done to clear the path forward.

PROGRESS

On his return the CEO spoke to Mohamed, who afterwards came to see me and we agreed to put the past aside and go forward together in the interests of improving safety at the company. He recalled the accident investigation committee issue, and only then did it become clear to me why he had snookered me at every turn. That issue had really made him mad at me!

I was experiencing a lot of stress, but I was also developing the safety team, which had now grown to 32 in number! My entire restructuring proposal had in the meantime been approved and was busy being implemented. The safety culture change had started, and many employees were now contributing and helping to bring about change. I was taking the role of catalyst in this process. Managers were even appointing their own safety coordinators and safety representatives, and I was training them up to internal accredited auditor level. The safety swell was gaining momentum.

During a board of directors meeting the deputy CEO's employment contract was prematurely canceled and he had to leave the company. I was shocked and realized his fear of Mohamed's influence and power and the rumor that he was connected to the royal family was in fact reality. That is why everyone was terrified of him. Since then I have believed the statement that safety is 90 percent internal politics and 10 percent work.

My shadow manager took over for me after I had been there a year and I moved to the line 5 smelter expansion project, where I helped develop the system further until line 5 was incorporated into the existing company. I continued to work closely with the safety team on a daily basis.

ACHIEVEMENTS

After two years the company was awarded an international four-star safety rating from the National Occupational Safety Association of South Africa. Two auditors spent a week evaluating every element of the safety system, interviewing employees, and inspecting the smelter and other areas with a fine-tooth comb. That same week

the company achieved the never-before milestone of working 4 million man-hours without a lost-time injury (based on the new one-day definition).

Some of the achievements that took place during the 2 years follow.

EXECUTIVE SAFETY COMMITTEE

The safety, health, and environmental executive committee was formed, which was chaired by the CEO and attended by the nine general managers. This committee approved the introduction of safety standards and issued the safety and health policy. This committee met monthly, and attendance was requested by the CEO and nonattendance frowned upon. The safety department arranged the meetings, sent out the call for agenda items and provided input information, requested support for projects, and functioned as a secretariat to the committee.

DEPARTMENTAL SAFETY COMMITTEES

The general managers would then cascade the information and decisions from the executive safety committee down to their own departmental safety committees, which they chaired on a monthly basis. The safety superintendent of the particular area acted as the coordinator of these meetings.

UNION SAFETY COMMITTEE

Monthly meetings between the union and the safety department were scheduled so that their input and concerns could be discussed. These replaced the informal meetings that I had held with the union from the beginning, despite being cautioned about meeting with them. Mohamed, who had previously been human resources manager, chaired the company union meetings and they hated him, so I saw it as a good strategy to build a strong alliance with them. These meetings constituted the union/company safety committee.

CONTRACTOR SAFETY COMMITTEE

Because of the large number of contractors constantly on site, a formal monthly safety committee meeting was scheduled, and all contractors were urged to attend. This committee was also attended by the contractors and the engineering managers. A contractor safety coordinator was assigned, and he was the main safety liaison between contractors and the safety department. He visited sites daily and conducted regular inspections. He also coordinated the contractor safety committee and ensured that they adhered to the company's new safety standards and procedures.

SAFETY AUTHORITY, RESPONSIBILITY, AND ACCOUNTABILITY

The CEO, in conjunction with the general managers and the human resources department, handed out written safety authority, responsibility, and accountability documents

to every employee and required that they sign acceptance of these requirements. The management-level session was conducted in the local club hall, and every member of the team attended as the CEO spelled out their responsibilities. The employee-level sessions were facilitated by their general managers in the same manner.

COMPLIANCE AUDIT

At this stage a legal compliance audit was conducted and the findings and report were submitted to the CEO. Nonconformances were tabled at the first executive safety meeting, and action plans were made to comply with local safety and health laws.

SAFETY MANAGEMENT SYSTEM

The safety executive committee discussed and gave final and full approval for the implementation of the safety system and pledged to support its implementation throughout the company. This was a major breakthrough, which could not be made from the safety department. Only the executive leadership could have made this decision and followed through.

SAFETY TRAINING

Another decision supported by the executive committee was that all managers be educated in safety techniques by attending the internal 8-hour modern safety management training course. This training oriented them in modern safety thinking and also explained the workings of the safety system. All general managers and managers were instructed to attend this training as well.

The decentralized and centralized safety staff members were trained in:

- Modern safety management
- Accident investigation
- Critical task procedures
- Safety system inspecting and auditing
- Near-miss reporting
- Risk assessment
- Accredited internal auditing

Once they had attended these classes they were placed on the 40-hour accredited internal auditor's course. Some 25 internal auditors were trained over the 2-year period. To improve communication skills of the safety staff, an internal branch of Toastmasters International was formed. Membership and participation at the internal Toastmasters public speaking club were also encouraged, and achieving a level three was one of their key performance indicators. All were encouraged to improve their communication skills as part of their development so that they could become effective safety trainers.

Safety orientation was presented in three different languages and was compulsory for anyone who would spend more than 6 hours at the plant. Visitors to the offices or plant had to be accompanied at all times. They received a visitor's orientation card and were required to watch the safety video, which played in the entrance waiting room.

REDESIGN OF SAFETY DEPARTMENT

The complete redesign of the safety department and the creation of twelve new positions, including nine decentralized safety coordinators, who were appointed at the same level as superintendents and who reported directly to their respective group managers, went ahead. Position charters were written for all the safety positions, and the new appointees were selected through a rigorous selection process, which included two interviews by a panel chaired by a general manager, a union representative, and the safety manager.

These safety, health, and environmental (SHE) coordinators attended 90 hours of internal training and were then required to attend weekly classes to study for and obtain the National Examination Board for Occupational Safety and Health (NEBOSH) certificate. The company allowed one day a week off for attendance and paid the necessary fees.

DEVELOPING LOCAL TALENT

The redesign of the safety department included the appointment of a local who was appointed as the shadow manager SHE. The intention was for him to shadow the SHE manager and be developed to take over as SHE manager, which he did after a year. The restructuring process also allowed for the appointment of two safety trainees to ensure that local employees were being apprenticed in safety for the future needs of the organization. In the past, mostly security personnel were transferred to the safety department. The first Arab female safety trainee was appointed to one of these positions, and she became the second female safety professional in the country.

STAFF DEVELOPMENT

Once the safety department had settled down, a selection process based on merit was started, and the two successful candidates were sent to attend the American Society of Safety Engineers (ASSE) Professional Development Conference (PDC) in the United States. This was the first time safety staff had ever attended an international safety conference. Other safety staff members were elected to attend safety courses in Dubai, also a first for safety. The department was renamed from plant protection (security) to safety, health, and environment and was later moved to new premises. One of the resident safety officers was finally appointed as a safety supervisor on the same grade as a superintendent after his promotion had been overlooked for the last 20 years.

SAFETY TRAINING VENUES

Two safety training rooms were built, and safety orientation for all contractors and employees was made compulsory. These rooms were fully equipped and safety training supplies and other stocks used during the courses were kept in the rooms. This may seem insignificant, but this massive organization did not even have a suitable safety training room. Previous safety training was done in a hallway that had a passage running through the middle of it.

ACCIDENT INVESTIGATION SYSTEM

Accident investigation and near-miss incident reporting systems were developed, the forms printed, the training given, the standards implemented, and responsibility for the investigations was then given to line management. This caused quite a stir because previously the safety superintendent did every accident and near-miss incident investigation, and local management was neither bothered nor involved. This was a major shift in safety culture.

SAFETY SYSTEM IMPLEMENTATION

Emergency evacuation drills were scheduled and implemented in all divisions, and the head office had its first evacuation drill in 20 years. Evacuation wardens were appointed and given training on how to sweep their areas during an evacuation. A mutual aid agreement between the major industries in the vicinity was signed and exercises held. A comprehensive near-miss incident reporting system was introduced, and a firefighting appliance maintenance person appointed. Some 75 safety standards were written (over a 2-year period) and approved by the executive safety committee. An external ergonomic study was conducted and an action plan was presented. This was the first proper ergonomic evaluation in more than 30 years and was conducted by an outside consultant. An industrial hygienist was sought and recruited to join the safety team.

PERMITS COMMITTEE

A permits committee was formed and met regularly to draft critical safety permits. New hot work, confined space, general permit to work, and excavation permits were written, approved, and introduced. A special squad of employees was formed into an at-height rescue team able to rescue someone suspended from a safety harness at height, and they were trained and equipped. A special three-story scaffold was erected as a permanent training structure for the team. This team was formed as a result of employees' concerns when working at heights.

SAFETY REPRESENTATIVES

Safety representatives were appointed and trained in all nine divisions, and their monthly inspections contributed to making the workplaces free from hazards.

During all this activity, four major safety competitions were run by the safety department. One was a “spot the hazard” competition that drew more than 2,000 responses. Prizes were offered and presented at mini functions held by the general managers.

SAFETY PUBLICITY

Safety publicity was obtained monthly via the internal company magazine, and in some issues safety news dominated other news articles. Previously, despite the submission of hundreds of articles and pictures on safety, none had appeared in the magazine because Mohamed was the executive editor and had final say over content.

SAFETY AUDITS

External safety system audits were arranged, and external international auditors spent a week on the property evaluating the safety system. A four-star safety rating was achieved and issued by the National Occupational Safety Association (NOSA) of South Africa. The internal trained auditors then followed up with 6-monthly internal audits.

SAFETY NETWORKING LUNCHESES

Safety lunches were introduced where the safety personnel could meet and converse with the CEO and general managers. Other safety departments and outside companies were also invited to these lunches, and a strong safety network was created. The safety department also visited other factories to review their safety systems.

ROAD SAFETY

With miles of tarred roads around the smelter shared by metal transport vehicles, contractors’ vehicles, and bicycles, a major road safety campaign was implemented. Two security personnel were selected and sent to the local municipality for training and were appointed as traffic controllers. They patrolled the roads and issued friendly warnings to traffic rule offenders. The objective was to educate rather than punish, but there was a “three strikes and you’re out” policy, especially for contractors. A mobile, solar-powered radar road speed indicator was placed at different positions within the plant to remind drivers of the speed limit. A strict vehicle seat belt policy was introduced, and no one was allowed onto the premises unless all vehicle occupants were buckled up.

THE STAE SAFE PROJECT

One of the biggest achievements of the culture change was the Safety Training for Aluminum Employees (STAE SAFE) project. This entailed training more than 2,000 employees during a 4-hour basic safety training course in their own language. Each general manager facilitated his or her division’s training, which was conducted by a superintendent and was coordinated by the safety team. Feedback from the

employees, who had never been exposed to any form of safety training, was tremendous. At the time this was the country's largest ever safety training effort. (During this period the organization worked 4 million injury-free man-hours based on the correct definition of an injury and without cooking the books.)

SOME SAFETY CULTURE ACHIEVEMENTS DURING THE 2 YEARS

Here is a shortened list of some of the activities and changes brought about as a result of the safety culture shift:

- The safety department was redesigned into the safety, health, and environmental (SHE) department.
- The department was renamed and later relocated to bigger premises.
- This eventually resulted in the creation of 12 new posts relating to SHE, some within the department, but most were decentralized.
- Two safety training rooms were built and equipped for safety and induction training, safety meetings, etc.
- A local person was appointed as the shadow manager for the SHE department and was placed on a fast-track development program to take over for the SHE manager within a year in an effort to develop and promote local talent.
- Two safety trainees were selected and appointed as safety apprentices and put on a 2-year development program leading up to the position of safety coordinator.
- The first Arab female safety trainee was appointed.
- Position charters for all SHE posts were written in the form of safety system standards and implemented.
- The SHE superintendents were educated by attending 90 hours of internal safety and health training and by studying for the NEBOSH certificate.
- Field and practical development of the SHE superintendents was undertaken.
- A centralized safety supervisor was appointed in the safety department.
- The National Examination Board Occupational Safety and Health (NEBOSH) certificate course was attended by all safety staff. One day a week was given off for this study by the company.
- A SHE permits committee was formed to revamp existing permits and approve new and updated permits critical to the SHE system. New hot work, confined space, permit to work, and excavation permits were written, approved, and introduced.
- During the 2 years, four major safety competitions (not injury based) were run by the SHE department, with many employees participating and many prizes being awarded to the winners by general managers.
- The safety leadership team committee (SHE executive) was formed and met monthly.
- The general manager formed his or her own departmental SHE committees, which met once a month.
- The union representatives and members of the safety department met on a monthly basis to discuss SHE items.

- The formation of a structured risk-based and management-driven safety and health system (the environmental system was already in place) was approved by the executive, who committed to support its implementation.
- Safety publicity was obtained monthly in the monthly internal magazine, which was produced in both Arabic and English.
- External safety system audits were arranged and conducted by a team of international auditors from NOSA.
- Internal audits were conducted by teams of trained internal auditors on a 6-monthly basis.
- A legal compliance audit was conducted, and the findings were submitted to the CEO, who set up an action plan to meet the requirements that were not met.
- The safety department held a competition to determine who gave the best classroom presentation of a loss causation model.
- Safety lunches were introduced and held on a regular basis with the CEO, the general managers, other safety departments, and outside companies to provide a safety networking forum.
- More than 30 safety representatives were appointed and trained.
- After reviewing certain self-development goals set for safety staff, the two successful candidates were sent to the American Society of Safety Engineers safety conference in the United States.
- Selected safety staff were sent to conferences and training in Dubai as part of their development.
- All line managers were educated in a modern safety management training course (8 hours).
- A near-miss incident reporting system was introduced and a 4-hour training program presented to assist employees and managers in reporting near-miss incidents.
- Two security staff were sent for official traffic warden training and were appointed as traffic controllers for the site.
- A comprehensive accident investigation system, as well as training, was implemented, and line management were made responsible for their own accident investigations assisted by safety staff where and when necessary.
- A vehicle seat belt policy and windshield stickers were introduced, and the gate security guards instructed not to allow any vehicle onto the site if the occupants were not wearing their seat belts. They also reminded vehicle occupants to buckle up.
- The CEO drafted and issued the responsibilities and accountabilities document to every single employee on site and received signed acknowledgments from all.
- A portable radar, road speed indicator display sign was purchased and parked at different positions daily to show drivers their vehicle speed in comparison to the speed limits.
- Emergency evacuation drills were implemented for most areas and buildings, and scheduled drills took place at prescribed intervals.

- An at-height rescue team was trained by international trainers and equipped with the necessary equipment for high-level rescues.
- Emergency response capability was tested.
- A fire appliance and equipment maintenance person was appointed, and the post was made a full-time position.
- A new compulsory SHE induction/orientation training program was started for new hires, contractors, and others who were on site for 6 hours or more.
- Fire-resistant uniforms, consisting of trousers and long-sleeve shirts, were issued to all employees in line with industry standard and made compulsory for all who worked in the plant.
- The change of work uniforms was extensively advertised, and information sessions held before its introduction.
- A visitor's safety orientation program consisting of a safety video being shown constantly in the reception room, and an instruction card, was introduced.
- An internal Toastmasters club was formed to assist SHE staff, and others, in improving their presentation skills.
- A total of 75 safety standards were written and approved by the executive.
- The implementation of these standards was coordinated and monitored.
- The new smelter's staff were trained in safety before the smelter was completed, and the safety system was in place months before the start-up.
- An international four-star safety rating was achieved.
- The milestone of 4 million injury-free man-hours was achieved.
- A qualified local occupational hygienist was appointed.
- An extensive ergonomic study was conducted and an action plan drafted.
- A mutual aid agreement with neighboring industries was signed and joint exercises were held.
- The contractor safety committee was established.
- A contractor liaison safety coordinator was appointed and site inspections conducted on a regular basis.

CONCLUSION

At the end of the 2-year period I could look back with pride at what had been achieved. I do not take credit for the changes, but acknowledge it was a team effort. When asked how I knew there had been a change in the safety culture, I pointed to a general manager driving his company car down one of the smelter roads and said, "See him stopping at the stop sign? Well, that's an indicator that the culture has changed here."

Was it worth it? Yes! I had never experienced such stress in all my life, and for the first time my health had been threatened by a safety culture change effort. My advice: Be sure you know what safety culture change is all about and be prepared for the stress that it creates. No pain, no gain!

AND THEN WHAT HAPPENED?

I learned later that once the CEO left at the end of his contract, Mohamed became joint acting CEO and changes were made to undo all that had been changed in safety. The original employee who he had earmarked for the post of safety manager was appointed, as the SHE shadow manager had since left. The department was renamed to the old title of plant protection, and almost all the initiatives we started were allowed to stagnate and eventually cease. This was indeed sad to hear, but it was very rewarding to meet up with colleagues from the company a few years later and recall how dynamic safety was at the company at one time. It also confirmed my experience that safety and safety culture change is 90 percent politics and 10 percent work!

17 The Copper Mine Case Study

INTRODUCTION

This is a true case study of how one person's drive, desire, and ambition to make a difference in safety brought about one of the most significant safety culture changes in the copper mining and refining industry in Arizona.

HOW IT STARTED

Susan had just been promoted into the safety department as a safety coordinator in the tank house, which is where anodes of copper are further refined in large baths of mild acid solution. Apparently she was totally disillusioned with the role that safety played in the day-to-day operations, and the refinery's reactive safety stance intensified this feeling. She felt there was more to safety than what was happening at the plant. Her disillusionment made her into a safety advocate for a structured system.

While discussing her frustration with the newly recruited smelter manager, he told her about the National Occupational Safety Association's (NOSA) Five-Star Safety and Health Management System (the Five-Star Safety System), which he had encountered at a copper refinery in South Africa. He told her that it was a proactive type of safety system that he thought she would love to be a part of.

INITIAL CONTACT

As the general manager of international marketing of NOSA, the copper mine contacted me in connection with the system, and I sent them some details of the system. NOSA had devised the Five-Star Safety System during the 1970s and promoted it successfully in industries and mines throughout South Africa and other countries.

It so happened that I was scheduled to present two 1-day safety training courses on the Five-Star Safety System in the Phoenix, Arizona, area, so I gave them the dates and venues of the training sessions and arranged permission for their representatives to attend and thus get a feel of what the system was all about.

The courses that I presented started off with the basic philosophy of safety management and the roles of management concerning authority, responsibility, and accountability, and how they were the building blocks of a safety management system. An introduction to the system followed as well as an in-depth description of the 73 elements that comprised a comprehensive safety system.

After being taught what to look for during a safety inspection, the students were taken on a plant tour and were asked to comment on physical deviations from the standards seen in pictures that had been discussed in the classroom. After seeing these pictures of world's best housekeeping, demarcation, and physical conditions, they were astounded at the poor plant conditions they were encountering. The plant was definitely not up to standard. The training course was a real eye opener.

The copper mine sent two representatives to the training, and they reported back to the company that the system was all it was made out to be and that they should progress further in obtaining it for implementation.

NOSA at that time had just made a decision to sell the system on a franchise basis, and this was an ideal opportunity for it to break into the U.S. market and also to sell its first franchised use of the Five-Star Safety System.

THE IMPLEMENTATION PHASE

Having agreed on suitable dates, I traveled to Arizona to the town where the plant was located. The entire team met me in the refinery office, where I initially met Susan and other members of the safety team. A contract was signed and I received the check on behalf of NOSA. The formal implementation training was to start the next day and continue for the next 2 weeks.

Every day for 2 weeks I put students through the 1-day classes. Then I took them on an inspection of the workplace, after which we returned to the classroom to execute a mini audit of what we had seen and evaluate it against acceptable standards. They were flabbergasted by what they saw. They learned about structured safety systems and what physical work conditions should look like, and how management safety controls drive the safety system.

Each class was taken to a different area to conduct the physical inspections, and I started to notice that some of the areas appeared to be better than on previous inspections. Employees were starting to clean up their work areas! After having hundreds of eager students traipse through their work areas taking copious notes and pointing out areas of poor housekeeping, bad stacking and storage, and other blatant hazards, the employees had decided they had had enough and started to clean up their areas.

AS IT WAS

The state of the physical conditions encountered on these first inspections was poor. Some 70 years of excessive material had built up in corners and wherever else stuff could be dumped. No floor demarcation was present, and basic safety standards were nonexistent. Windows were generally dirty, and the floors were covered with dirt, electrical extension cords, hoses, and other obstructions.

It was common practice to have unsupported gas cylinders all over the work area, and fire extinguishing equipment and electrical disconnects were mostly obstructed and sometimes totally inaccessible. Workshop windows were dirty and obscured. Many machine pinch points were unguarded, and bathroom facilities needed a major cleanup.

It had been that way for so long that no one noticed how bad it was, and many had never seen five-star safety standards to be able to compare with. They were satisfied with the way things were. One or two of the employees were clearly aligned to Susan's way of thinking, and they were sucking up every bit of five-star safety knowledge that they could. They were very helpful in arranging the classroom, the audiovisual equipment, and other items that were needed for the training.

One of the biggest breakthroughs was when a divisional manager, out of curiosity about this classroom to site inspection and then back to the classroom routine taking place throughout the plant, took time out and attended one of the training sessions. He was amazed at the intensity of the system and more amazed when the training forced him to inspect work areas that were under his control. He had never done a safety inspection in these areas before. He reported back to the executive management team that this was an ideal system for improving safety at the plant and that it should be given more support.

At this stage it was only the refinery that had bought into the system, but the contract included all sites and properties of the company, so the other divisions decided to get on board. Almost like a fever, this thirst for safety knowledge swept through the organization, and our classes were filled to overflowing for the next 10 days.

MANAGEMENT CLOSEOUT

At the end of the implementation phase I had a closeout meeting with the plant and mine directors, who were happy with what was happening with the safety around the plant. I had gotten together for dinner with the plant director and his wife at the local Mexican restaurant a few nights previously, and had been invited back to their ranch-style home for coffee. Being from the old school of management, safety was not normally something he got directly involved in, but we had a good relationship and formed a bond on which to further enhance the program. This bond proved essential to the future change of the safety culture.

During the meeting with the directors before I returned to South Africa, I indicated that a strong leader was necessary to take the reins of the system and continue with the implementation, to which both directors agreed. I did not realize it at the time, but the plant director's son-in-law, who had difficulty finding a job, had recently been placed into the safety director position.

ONLY THE PLANT

The initial implementation of the system had excluded the mine, which was situated some 8 miles away, but once they began to hear of the small successes the plant was having in terms of improving the physical conditions, they too showed interest. Peer pressure between the directors also led to a situation where the mine director did not want to be shown up by his plant counterpart, and he started asking how they could become involved.

Since the plant had been on the system for a number of months, I phoned Susan and asked how they were progressing with their demarcation program. She replied,

“Oh, we haven’t started demarcation yet.” I told her that I was disappointed, as they had already been on the system for months, to which she replied, “We can’t demarcate yet because we are still finding the floors.”

THE FIRST EXTERNAL AUDIT

In the interim there had been a management change at NOSA, and I left the plant but kept in touch with their progress. NOSA had not contacted them or followed up on my initial system implementation intervention and training since my departure. I was subsequently invited back to conduct the first external audit of the plant during the December vacation in a private capacity, and my wife, also an accredited five-star safety auditor, was invited along, too.

The first audit of the plant went well and acted as a follow-up to the initial training in the system. The physical conditions encountered were surprisingly good, and vast improvements had been made. When I asked the locomotive shop manager what he had done to make the shop look so good, he replied, “I did what you recommended in the beginning, I cleaned the windows!”

THE MINE BUYS INTO THE SYSTEM

I was offered the opportunity to address the mine management during my visit, and a suitable seminar was arranged. The company’s managing director also attended the seminar. After a short presentation and much discussion, the mine accepted the radical principles of the Five-Star Safety System, and for the first time in almost 70 years embarked on a risk-based, management-led, audit-based safety system.

The mine had been out on strike for about 9 months a few years previously, setting a record for unions striking without being broken. One of the strike issues happened to be safety, so this also helped with the introduction of best practices in safety.

NO FOLLOW-UP FROM NOSA

Despite the tremendous success of its first U.S. franchise at one of the world’s largest underground copper mines and plant, NOSA had still not followed up on the purchase of the system, except to threaten me with legal action when they found out that I had audited the organization in my private capacity. I countered by asking to purchase a franchise for the Five-Star Safety System for North America, but never got a reply. The NOSA board of directors at this time was getting uncomfortable with the tension between me and the NOSA managing director around its first international franchise client.

THE CONTRACT

One day I contacted Susan and made a proposal to work for them for a 3-month consultancy period based on a 3-year contract. She took the idea to the management and they immediately approved. The NOSA board of directors also issued me with a

contract to run and promote the Five-Star Safety System at the company and licensed me to carry on with the NOSA training programs at the copper mine, many of which I had developed while working at NOSA.

THE FIRST 3 MONTHS

The first 3 months of the contract were a blur of training courses at both the mine and the plant. We were training some 30 students a day on the inspecting and auditing class, and enthusiasm for the system, and especially to clean up the work areas, was escalating.

The union was on board, management was on board, and there was a political race between the plant and the mine to be first to reach the five-star safety standard.

THE SAFETY LEADERSHIP TEAM

To drive the system at the plant, the safety leadership team comprising all the divisional managers was formed with the sole purpose of promoting, driving, and supporting the Five-Star Safety System. They met monthly, and the newly appointed safety director reported to them at their monthly meetings.

REPORTING HIERARCHY

The safety director was appointed by mutual agreement between both directors, and he reported directly to both of them. This was one of the key factors that ensured that the momentum of implementing the system was maintained. The organization was going through a radical change of safety culture after 70 years of being reactive in safety, and leadership support was vital to the process of changing to a proactive safety culture. As a consultant I reported directly to the safety director, who in turn reported to both directors.

RESTRUCTURING OF THE SAFETY DEPARTMENT

Due to retirement and staff changes, the safety department was restructured for the better and clear job descriptions were issued, forcing the safety personnel to be proactive advisors rather than reactive safety cops. Safety was now given a status in the organization, and the department was noted to be making a difference to the organization.

INJURY MANAGEMENT

In the past the safety officer made it his duty to ensure he was notified as soon as an injured employee arrived at the hospital. He had a contact there who would page him immediately upon a patient being admitted to emergency. He would then be the first person at the hospital and would attempt to convince the medical staff that the injured person could return to the plant. If he was successful, no reportable injury was recorded and he would then report to management that only a minor injury had taken place and there was no need for concern.

I personally experienced this when I visited the local hospital because of an ear infection that developed while flying overseas. As I walked into the hospital, the doctor recognized me as being an employee of the safety department. He immediately approached me most apologetically about Jim Brown (not the person's real name). "What about Jim Brown?" I asked. He said, "I'm terribly sorry, I've tried everything, but he will not be able to return to work for the next shift." My curiosity piqued, I asked the doctor what had happened. Jim had apparently been injured in a fall at work and was having difficulty walking because of massive bruising of his hip and right leg. The doctor continued, in an apologetic manner, to explain to me that he just could not allow Jim to return to work. It then dawned on me that if Jim could have returned to work, it wouldn't have been counted as a lost-time injury but only as a minor injury.

Here I was in the hospital with a medical doctor *apologizing* to me for the fact that the organization had injured Jim so badly that he could not return to work the next shift. Some organizations, safety departments, and safety personnel practically *intimidate* doctors into releasing patients injured on the job back to work, in order to preserve the safety record.

THE SAFETY AND HEALTH REPRESENTATIVES

The Five-Star Safety System requires the appointment of part-time safety and health representatives who are allocated a portion of the work area and who have the function of inspecting the area on a monthly basis and reporting to the manager on the findings. The mine, taking this seriously, lifted four union-nominated employees out of the workplace and made them full-time safety and health representatives with the sole function of facilitating the implementation of the Five-Star Safety System.

This was a radical change in safety culture, as in the past the safety department always had to get along with minimum manpower. A special office was allocated, and so the mine NOSA Task Force was formed.

ONE-UPMANSHIP

The plant, on hearing about the appointment of full-time safety staff at the mine, promptly appointed five union-nominated members and formed them into the five-star safety team at the plant. Again, a suitable office was allocated, computer equipment supplied, and Susan found herself with an entire team ready and trained to continue with the system implementation.

The mine went a step further and took a production foreman out of his area to head up the five-star safety team. This was unheard of, as this production foreman was a key person in the mining process. They also saw the benefit of the Five-Star Safety System element *critical task identification*, which requires the identification of the mine's critical tasks and the writing of critical task procedures for those tasks. They removed another young mining manager from the production line and gave him a short-term assignment to form a team to do task risk assessments and write the procedures for the most critical tasks underground.

I had already trained 100 or more employees in the techniques of critical task identification, and for the first time in the history of the mine they were now identifying those tasks that had the highest potential for loss.

MANAGERS NOW ATTEND THE TRAINING

The mine manager attended one of the inspecting and auditing classes, and his attendance was a first for the mine. In the past there was no way that management were involved in safety matters so close to the ground. To attend an 8-hour safety course other than the compulsory Mine Safety and Health Administration (MSHA) training was unheard of. Needless to say, after completing the course he immediately made it a key performance area (KPA) for all his managers to attend the same training. This really got the ball rolling at the mine, and there began a craving for the NOSA system, or as it was then called, the NOSHA (a combination of NOSA and OSHA) system.

Each day for almost 3 months nonstop we trained up to 30 employees, managers, and union members on the 1-day inspection and auditing courses. Line managers, union representatives, and safety staff attended the 5 days' training required for safety and health representatives, and a five-star safety and health representative jacket was presented to all who completed the course. This jacket became a prize possession, and employees flocked to the training to complete the courses and be presented with this jacket. I watched many an employee receive his or her jacket and attendance certificate from the general manager at the final class presentation, and there was a look of pride and achievement on the employee's face when he or she first donned the jacket. The employees wore it with pride.

SAFETY SYSTEM DEVELOPMENT

As part of this overall safety culture change the task teams set out developing and writing standards as required by the system. These "measurable performances" had to be approved and signed off on by the executive managers as well as the unions. The unions were excited about the entire process, as for once they were obtaining written commitment from management for basic safety issues.

Procedures were rewritten, as many did not exist or were outdated. Critical procedures such as lockout and tag-out and confined space entry were reexamined by subcommittees and rewritten, issued, and the relevant training given.

THE LOCKOUT, TAG-OUT STANDARD

One of the biggest stumbling blocks at the plant was revising the energy lockout procedure. In the past there had been so many instances of employees locking out a piece of machinery, forgetting about it, and returning home to the city, some 45 miles away, with the key in their pocket. The next crew, wanting to use the piece of equipment, would cut off the lock, switch the machine on, and continue with the work process. This became such a problem that the warehouse complained about the cost and number of locks being destroyed each month and decided to use metal clips (similar

to the ones used to seal electricity meters against tampering). The reasoning behind this was that they were easy to cut off and were cheap! This defeated the purpose of the entire system, and making changes to this process was met with a tremendous amount of push-back from the operators. The proposed new policy that dictates the lock-out procedure started with, “What to do in case the operator has locked out and gone home (45 miles) with the key in his pocket.” It was explained under what conditions the lock could be cut off.

We finally reached consensus that cutting the lock under any circumstances defeated the objective of the system and was not an option except under dire circumstances that would involve the head of security, clearance permits, affidavits, etc.

RESISTANCE TO CHANGE

The implementation of the system and the subsequent safety culture change was not always easy, and there were many employees who were very skeptical. The plant had introduced the Du Pont Safety Training Observation Program (STOP) many years previously as its fully fledged safety system (which it is not), and this had evolved into a fault-finding, finger-pointing exercise on a daily basis. Supervisors were required to fill in a quota of cards each shift, and many did so in the change room before the end of the shift, completing the cards just to be able to hand them in and meet the quota. Employees saw this and became suspicious about safety programs. The question we were asked most often was “How long will this NIOSH program last?”

STAFF DEVELOPMENT

Part of my role as safety advisor was to train the safety teams in all aspects of the system so that they were competent to implement and coordinate it in their own areas of responsibility. I also assisted in developing the newly redesigned safety team and taught them accident and near-miss investigation techniques, risk management, and other safety system-related courses.

ONE FIVE-STAR AREA

During a 6-monthly internal audit when some 32 locally controllable safety elements were measured and scored, one workshop achieved the five-star standard. This was celebrated and banners were erected and a trophy presented to the area manager, Dave. For the first time employees were being recognized for doing positive things in safety. A short internal movie was made of the progress of the system and the achievement of a five-star area, and this was used extensively in further promoting the system. This milestone inspired many people and spurred a lot of managers into action to achieve the five-star level so that they too could be recognized.

COPPER COMPANY MERGER

During this massive safety culture change movement the mine and plant were taken over by an international mining conglomerate and became part of their North American operation. Fortunately, the conglomerate supported the Five-Star Safety System, as it already had international mines running the system. Their safety culture also boosted the efforts being put into the Five-Star Safety System at the plant and mine.

NEW CORPORATE SAFETY DIRECTOR

During this period the organization appointed a new safety director to be in control of all of the operations. He immediately reverted to what he knew and put a number of managers through the Du Pont training program. The lecturer from Du Pont met resistance from the groups when he discussed disciplining employees for unsafe actions, which was in direct contradiction to the “guide, educate, and train” philosophy that the Five-Star Safety System had introduced into the mine and plant.

The course material handed out contained an introduction paragraph stating that 95% of all accidents are the fault of the worker, or words to that effect. Again, this was a contradiction of our new safety philosophy that accidents have multiple causes, and the philosophy of getting to the root causes of system failures.

Despite a number of attempts to revert back to the old safety ways, the organization remained focused on the upstream activities of the Five-Star Safety System, which was delivering amazing results and transforming the 70-year-old safety culture. Being the catalyst in the safety culture change, and a foreigner on top of it, I was not the new corporate director’s favorite person, and was sidestepped a number of times. Others were sent to safety conferences and I was left out. My office was constantly moved. After investigating a fatal accident, I found more than 14 root causes of the event and listed these in my report. The safety director instructed me to review the report, which I did. I sent it back to him and he returned it telling me to review it again. I made a few changes and sent it in again. I refused to change the report and shift the blame onto the deceased victim, which I am sure was expected of me. The report was circulated with a note from the safety director to ignore my root cause analysis as it was “pure speculation.” The next week I was sent to a small office at the mine training center as my new home. I wonder why?

MSHA TRAINING

The compulsory annual Mine Safety and Health Administration (MSHA) refresher training at the mine had become a stalemate. The training consisted of a whole day of the instructor playing about eight videos on safety, only popping into the classroom to change the tapes. One young man confided in me, “I sleep through these classes every year.” Miners hated attending these sessions, and with the introduction of the Five-Star Safety System the approach to MSHA training was changed drastically. A dynamic young safety coordinator who was an excellent presenter redeveloped the

day into one of teamwork, competition, and participation. This was so successful that attending the MSHA refresher became a pleasure for the miners.

Among the activities, the teams had to build a tower to support a brick with a children's construction kit consisting of wooden dowels and joiner pieces. The highest tower won the competition. The aim of the exercise was to launch a discussion about underground ground support, weight and angles, etc. The end-of-class quiz was a competition between the teams and raised the enthusiasm level to such height that much shouting, competing, and laughter was the order of the day.

TRAINING OF SAFETY AND HEALTH REPRESENTATIVES AND THE JACKETS

It was decided that a logical training program for the five-star safety and health representatives or task teams would consist of the following five 1-day training courses:

- One-day inspecting and auditing
- Effective accident and near-miss incident investigation
- Practical risk assessment
- Critical task identification and job observation
- Safety representative functions and revision class

After completing the courses they could qualify as fully fledged five-star safety and health representatives and would be awarded a special jacket with the five-star safety logo and words *Safety Representative* embroidered onto it. At the graduation of the first group of safety and health representatives a lunch was provided on the last day of class, and management was invited to hand over the jackets and present the certificates. This had never been done by managers before and was another safety breakthrough. Managers were becoming involved in safety. One employee said to me, "I've been here 15 years and management hasn't given me a thing. I don't believe we will be getting a free lunch!" The lunch did arrive provided by management, but the employee had brought his own sandwiches to work—just in case!

SAFETY RECOGNITION

This safety recognition had never ever been done at the company before, and it created an impact on the employees and management. For the first time people were being recognized in public by their management for safety achievements. This jacket seemed to all of a sudden become symbolic, and there was a mad rush to attend the training to get one. The recipients wore their jackets with pride, and other employees could not believe that they had been awarded jackets with the embroidered five-star safety logo for being part of the safety system. Never before had employees been recognized and rewarded for participating in safety activities. What started as a safety personnel development scheme now burst wide open into a free-for-all, as plant managers decided they too had to attend the training to keep up with the flow of five-star safety knowledge and excitement about the system that was generated by employees

who had attended the classes. Employees flocked to the classes, which were often oversubscribed, and waiting lists grew.

Inspired by what they heard and saw, all plant managers also attended the training, many qualifying for the coveted five-star safety jacket.

NEAR-MISS INCIDENT REPORTING

One of the safety elements taught during the training was that of identifying, reporting, and rectifying near-miss incidents before they end up as loss-producing accidents. When we introduced the concept to the class I will never forget the oldtimer miner who stood up and called me crazy. When I asked him why, he said that a few years ago he had reported a near miss. “So what happened?” I asked. “They sent me home for three days with no pay!” he replied. He went on to say that he swore never again in his work lifetime would he report a near miss. This was the situation when we initially embarked on the program.

During all classes we had incident recall sessions, and it was clear from the number of near-miss incidents discussed that there was an urgent need to formalize the program. We designed and printed a carbonized, pocket-sized booklet that allowed a person who reported an incident to keep a copy of the report for his reference. The cover served as a backing for the separator sheets, and the form did not require the reporter’s name to be given. We also received management’s blessing for a “no-names, no-pack-drill” approach to near-miss incident reporting. (This was the key to the success of the program.) This no-fault reporting system, after 70 years of finding people wrong, was a breakthrough in the safety culture.

We also refused to give out these booklets, which the miners liked because they could fit in any pocket and stay dry while working underground. Instead, we presented a 4-hour training class on near-miss incident reporting and risk ranking. To get a booklet you had to complete the training. The form had a built-in mini risk matrix. The miners were upset, and as I wrote in *Safety Management: Near Miss Identification, Recognition and Investigation*:

When we introduced the system at a large copper mine and smelter we decided to do things differently. Our pocket size, perforated and self-carbonized booklets were ideal for underground miners to slip into their pockets where they could stay dry and safe in wet underground conditions. They were also simple, easy to complete forms and the reporter could retain his carbon copy in the booklet.

Some miners saw the booklets while they were being delivered from the print shop and excitedly demanded copies. Seeing the opportunity to “Sell the system” we told them that they first had to attend the near miss training session before they could get a booklet. Their reaction was typical, “You safety guys load us with tons and tons of paperwork that we don’t want and now we ask for safety paperwork and you won’t give it to us!” (McKinnon, 2012a, p. 136)

The 4-hour sessions on the theory of near-miss incidents and how to use the booklet to report these incidents were scheduled and oversubscribed for the first 2 weeks. We had to turn employees away on a number of occasions, as the training room was

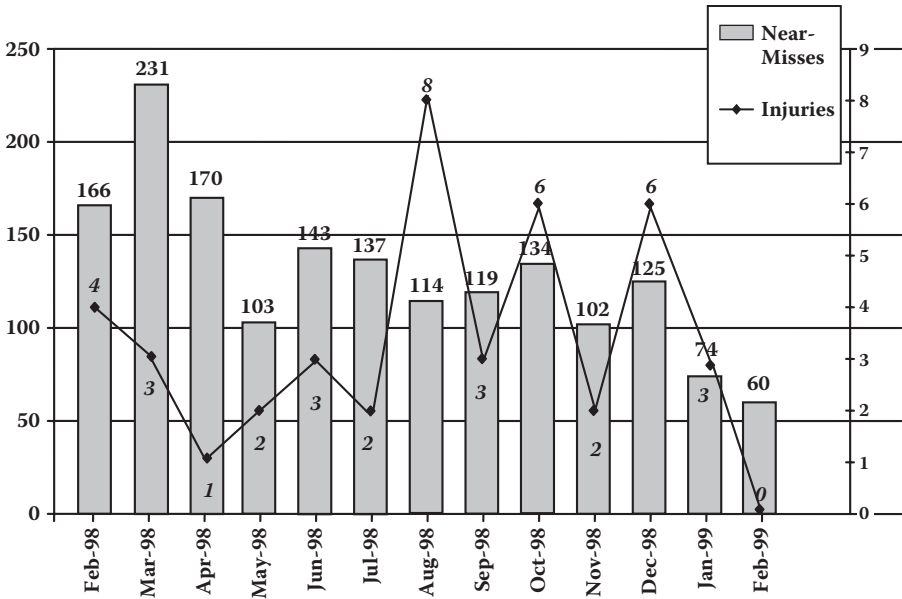


FIGURE 17.1 As near-miss incidents are reported, injuries are reduced.

full. As the employee/management safety representative, Frank Salas, said, “We’ve always had to drag the guys into safety training classes and now we have to turn them away! This is the first time in 30 years that that has ever happened!”

The results of our strategy paid off, and soon near-miss incident reports began flooding in. Actions were taken and a monthly, progressive number of actions completed were displayed at the staging area for everyone to see at the beginning of each shift.

After a few years the organization received a record number of 2,212 near-miss incident reports in one month. Total employees at that time were about 2,300, including the mine and plant.

RESULTS

Based on the near misses reported in the tank house, we plotted how the total injuries climbed as the number of near-miss incidents reported declined, and how the injuries fell when the number of near-miss incidents reported rose. The number of near-miss reports was one of the main management indices used and discussed at the executive level. (Figure 17.1)

INTERNAL ACCREDITED AUDITOR TRAINING

As the development of the task teams, management, and employees progressed, we trained qualified five-star safety and health representatives up to the level of internal auditors on the 40-hour accredited auditor’s course. Representatives from other divisions and mines in the group also attended the auditor training. The Five-Star Safety

System was also being implemented at their sites and mines as company policy. Visitors from all over visited the plant and mine and were amazed at the safety culture they found. The state mine inspector at the time rated the smelter as the safest in the state.

EXTERNAL AUDITS

External auditors were brought in on an annual basis to audit both the mine and the plant, and excellent audit scores were achieved. The mine was rated three-star and the plant four-star. Star ratings were restricted because of NOSA's policy of incorporating the injury rate as one of the grading criteria.

REDUCTIONS IN INJURY RATES

All this effort did pay off in the long run, and although it is a reactive, subjective measure, the lost-time injury rate did decrease by about 70% over a 4-year period, and the severity rate fell by more than 82% over the same period.

SAFETY CULTURE CHANGE

So had the safety culture changed? Yes! The entire culture moved from a reactive mode into a proactive safety mode with the implementation and maintenance of a world's best safety management system led by the management teams. They provided the resources and allowed for the development of those resources, and also participated in the development process by attending the training and getting involved in safety inspections, committees, and recognizing employees.

The workplaces had transformed from dark, dingy, untidy, and unsafe areas to clean, neat, and orderly workplaces that inspired employees to keep them in that state. When I would see employees in the local grocery store over the weekend, they all told me how successfully the system was working in their areas. They were excited about safety.

I knew there had been a major safety culture shift when at the external annual audit opening conference the four members of the safety leadership team (the four plant managers) each, in turn, stood up in front of the auditors and gave a presentation on his or her particular division's achievements in safety and gave details of the safety system in action. I was astounded at the knowledge of the Five-Star Safety System and safety that they presented and was impressed with the way they had taken ownership of the system.

I was sitting in the corner of the boardroom during the presentations and was totally ignored after being the five-star safety advisor for more than 4 years. They continued with their presentations, and I knew the auditors were impressed. I was impressed. That's when I realized that I had just worked my way out of a job! I was no longer needed. They had got it!

CLOSURE

Unfortunately, low copper prices and rising production costs forced the closure of both the mine and plant after some 70 years of operations. Nevertheless, the five-star safety guys and gals all left for jobs in the safety arena and are doing very well today. Everyone who was involved will testify that this was truly an example of a massive safety culture change.

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“Ron McKinnon informs the reader of how management’s role really sets what safety culture is all about. He guides the reader through a detailed discussion of why safety culture isn’t just limited to a collection of random worker behaviors but is much more of a purposeful outcome of the active policies that management embraces, demonstrates, and leads with by example.”

—JONATHAN KLANE M.S.ed., CIH, CHMM, CET, 2012, Klane’s Education Information Training Hub

Despite the fact that workplaces have implemented and followed safety innovations and approaches, the majority of them have seen little, if any, significant progress in the reduction of accidental deaths and injuries. **Changing the Workplace Safety Culture** demonstrates that changing the way an organization views and practices safety will impact the behavior of all employees including executives and line managers. It delineates how safety culture change can be implemented and defines the roles of everyone in the safety culture, including management, employees, and unions and their members.

Rather than focus on behavior-based safety measures, this book provides step-by-step procedures showing how to establish a long-lasting integrated safety management system in any organization. It explores how to change the safety personality of an organization. The author covers the management principles and functions that need to be applied to bring about safety culture change and includes many real-life examples. He explains the activities needed to implement safety change and the benefits of getting others involved in the safety management system.

The only way to ensure that accidents and their consequences are tackled at the source is to identify and eliminate the workplace risks before, rather than after, the event. To be truly effective, safety activities must be integrated into the day-to-day business and become a way of life for management and employees. This book provides a blueprint for creating an active safety culture that prevents accidents before they occur and becomes the key component in an ongoing safety success.



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