



Is a Zero-Incident Objective Achievable in Environmental Health & Safety?



Introduction

A zero-incident objective, known formally as Zero-Accident Vision (ZAV), is a popular philosophy in environmental health & safety (EHS) that holds that no one should ever be injured in the workplace. It's a way of thinking about injury-prevention strategies rather than an actual goal, thus providing a basis for continually improving EHS processes. ZAV proposes that all accidents are preventable, and a strict interpretation of this philosophy holds that accidents don't even exist because all such incidents occur for a reason. While it acknowledges that people make mistakes, ZAV holds that these errors shouldn't result in injuries.

EHS analysts generally agree that organizations practicing ZAV should make it a part of their overall business management rather than a discrete process. This integration is essential for fostering the culture of continuous improvement required for ZAV to positively affect EHS performance. ZAV also affects many other aspects of EHS, including learning from incidents, risk management, worker cooperation, the use of resources and implementing new practices.

Culture

An organization's safety culture is a key issue when implementing the ZAV philosophy. This culture determines the manner in which safety practices are actually implemented within an organization as opposed to the practices documented in guidelines and regulations. This distinction is important because the root cause of occupational accidents is often a poor safety culture. The commitment and attitude of employees toward safety is especially critical for a ZAV culture.

The importance of safety is becoming more valued in both the workplace and society in general. A strong safety culture improves an organization's competence, productivity, quality and reliability, so ZAV provides an organization with a competitive advantage. Management's role in creating a strong safety culture therefore can't be underestimated.

Experts generally classify the strategies for improving safety culture into normative and open approaches.



Normative Approaches

Normative approaches are typically top-down and begin by defining the expected norms for EHS behavior and practices. The EHS manager can then implement a program that focuses on compliance, which may include promoting well-defined behaviors, such as getting 30 minutes of exercise each day.

The Health and Safety Executive in the United Kingdom, for example, promotes the Safety Culture Maturity Model, which is a well-known example of a normative approach to developing a ZAV safety culture. The Hearts and Minds program, first presented at the 2000 SPE International conference on Health, Safety and Environment in Oil and Gas Exploration and Production, is another normative approach similar to the Safety Culture Maturity Model.

Normative approaches allow different entities to assess the existing safety culture, including managers, supervisors and workforce representatives. The outcomes of these assessments are likely to be quite different, which can result in useful dialogue on improving safety culture. The next step in a normative approach is for EHS managers to develop an action plan for advancing the organization's safety culture, paying particular attention to topics that currently have a weak score.

» Normative approaches are typically top-down, while an open approach for improving safety culture focuses on providing the workforce with self-regulation and motivation.

Open Approaches

An open approach for improving safety culture focuses on providing the organization's workforce with self-regulation and motivation. It attempts to increase everyone's understanding of EHS and the need to prevent injuries. Common methods of achieving these goals include dialogue, education, and training.

An organization that adopts an open approach might begin with a workshop for all employees on the importance of the organization's EHS policy. This workshop should be attended by all employees and facilitated by outside moderators. These moderators should document the challenges identified during the workshop and their implications for daily operations. This process helps managers and employees gain a mutual trust and understanding of each other, which can generate concrete suggestions for improving the organization's safety culture.

Lessons Learned

Learning from near-miss situations and incidents that have already occurred is one of the most important ideas of the ZAV philosophy. This process allows for the possibility of taking corrective action that will prevent similar incidents from occurring in the future. Incident analysis is therefore one of the most frequently described processes in a ZAV environment.



Complex Analysis

Several specific models exist for complex incident analysis, which generally consists of specific steps such as reporting, investigation, analysis and disseminating the lessons learned. The CHAIN model proposed by Anna-Karin Lindberg is a model of experience feedback that emphasizes this chain of steps.

Linda Drupsteen developed another framework for analyzing incidents that divides the process of learning from an incident into four steps, including investigation, planning interventions, implementing interventions and evaluating their results.

Incident analysis should be viewed as a cyclical process rather than a linear process with a well-defined beginning and end. This view allows an analysis to be easily re-evaluated and adjusted when an intervention is initially ineffective, often as part of a risk assessment or audit. A cyclical view of incident analysis also allows an incident to be regarded as a warning sign, thus providing an opportunity to learn from it. This sequence of steps is also known as the plan-do-check-act (PDCA) cycle developed by William Edward Deming. Similar experiential learning models may also be used to describe organizational learning processes.

Simple Analysis

People generally tend to rely on their past experiences when seeking a solution to a new problem, such as a situation at work with a significant risk of injury. Accident investigation is therefore a critical learning tool for allowing workers to maintain a positive safety attitude and investigate near-misses in the manner they do for actual incidents.



Simple incident investigations generally don't require a long period of training, merely commitment and the proper orientation. A worker can often complete this type of investigation in a couple of hours.

The Finnish model provides a good example of a technique for analyzing a simple incident because it's easy to use by nonexperts, although it has no statutory requirements. This model generally assumes that the investigation team is composed of members from different organizational levels.

The Finnish model attempts to answer basic questions such as the following:

- » **What happened?**
- » **Where did it happen?**
- » **What were the circumstances?**
- » **What personnel and equipment was involved?**
- » **What work was being performed at the time of the incident?**
- » **Was the situation unusual?**



Near-misses

A near-miss case is one in which no one was injured, although an injury was possible. Many organizations treat near-misses quite differently from actual incidents, often taking no action at all after a near-miss. However, a ZAV culture handles a near-miss in a similar manner to an actual incident.

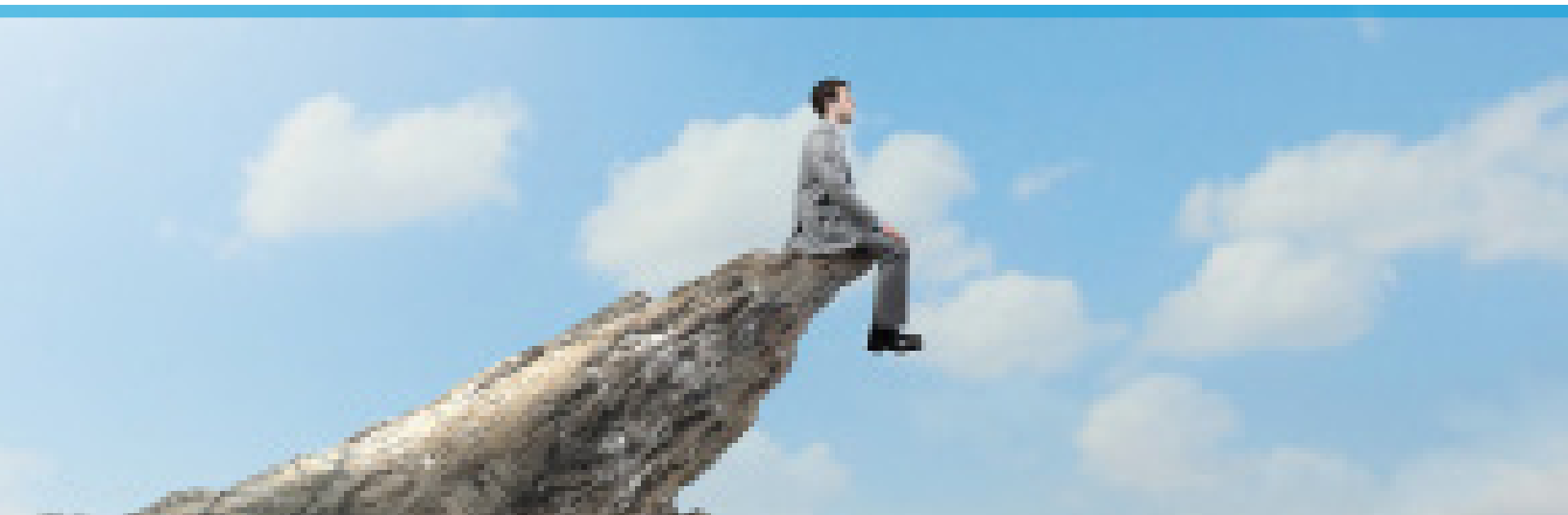
Near-misses provide a powerful learning opportunity for implementing accident-prevention strategies. Identifying the root causes of a near-miss also helps an organization prevent similar incidents from causing injuries in the future.

Steps such as identification, reporting and disseminating the lessons learned may be virtually identical between near-misses and incidents involving actual injury. However, the analysis phase will be significantly different in near-misses because the analyst must predict the ways in which an injury could occur rather than assessing the causes of an injury that has occurred.

The similar handling of a near-miss and an actual incident is a result of the fact that the ZAV philosophy doesn't acknowledge the role of bad luck as a possible cause of an incident. The concept of luck is generally replaced by specific individual factors such as operator error or organizational factors, such as inadequate procedures. Unsafe behavior by an individual is difficult to predict and control, but organizational factors that existed before the incident are considerably easier to modify. Identification of the root causes of a near-miss also may improve an organization's profitability in addition to improving the workplace's level of occupational safety and well-being.

Risk Assessment

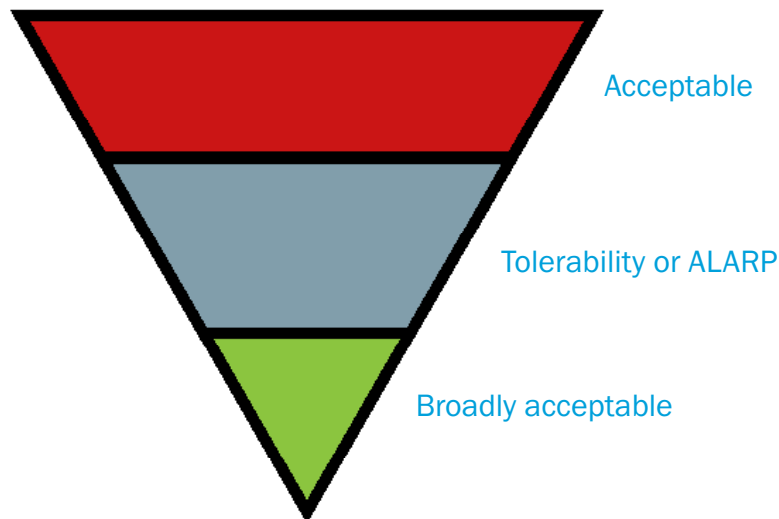
Employers need to identify and control the risks in their organization to minimize the likelihood of harm to all personnel in the workplace. However, safety incidents don't necessarily occur at the time and place they're expected. Unpredictability is a defining characteristic of incidents, even when it seems that every possible risk has been identified and all measures have been taken to prevent them from occurring. Risk assessment traditionally includes assessing multiple assumptions of possible risks within a limited period of time. The PDCA model makes risk management an iterative, cyclic process that involves an examination of all the work environment's characteristics, including the workplace itself, equipment, materials and practices.



ALARP

The primary objective of risk management is to identify all of the possible incidents that could result in injury to a worker. Furthermore, risk management also attempts to identify and implement the safety measures needed to prevent workplace incidents and occupational diseases. This aspect of risk management is sometimes known more specifically as risk control.

Organizations often use the traditional As Low As Reasonably Practicable (ALARP) principle to manage risk. The ALARP approach to risk management requires active participation of the entire workforce due to the multiple steps required.



Preparation for risk management typically begins by identifying the workers who are exposed to each risk. This step should devote particular attention to workers with special needs, including pregnant women, older workers and workers with disabilities. It also should consider non-employees who may be on the premises such as contractors, customers and visitors. The next step in the ALARP model of risk management is typically to characterize the equipment, materials, procedures and tasks for each work area.

The EHS manager must then identify the safety measures that are already in use, along with the occupational injuries and diseases for each workplace. The final step for the ALARP is to identify applicable guidelines for each workplace, which may include government regulations, company policy or industry standards.

Resilience

Organizations with a ZAV culture often adopt a concept known as resilience, a relatively recent concept in risk management that focuses on challenges that an organization may face in the future. Resilient risk management means that an organization has the flexibility to return business operations to normal after an incident with minimal impact to individuals and property.

Resilience is therefore based on an organization's behavior rather than its available resources. This view of risk management requires an organization to manage unpredictable processes while retaining the ability to respond to sudden changes in risk.

Driving a car is a common situation where resilient thinking is essential. You can easily observe general patterns ahead of you in signals and vehicle movements, even in light traffic. However, you can never be completely certain about what lies beyond the next bend in the road or the actions that an individual driver might take. This degree of uncertainty indicates the same need for resilient thinking that organizations encounter when developing their risk management programs. They must function in a highly dynamic environment that is predictable only in general terms. An effective risk management program must therefore prepare organizations for challenges that it might not have foreseen.

» Resilience is a concept that helps organizations prepare for unpredictable challenges.

Allowing margins for unexpected events is essential in the ZAV philosophy. No one can adequately prepare for all possible incidents, so some level of risk will always exist. The tendency to believe that all you need to do to prevent an incident from occurring is follow the risk management plan is one of the greatest recurrent risks in EHS. The possibility of an unidentified risk that could lead to a serious incident is always present. A positive safety attitude and regular assessments are therefore essential for preventing these types of incidents.

Management

Senior management plays an essential role in the ZAV culture because risk reduction requires significant resources from an organization in terms of both time and money. Managers who truly value safety do so because they are concerned about their workers' well-being. Physical safety is also the single most important factor in recruiting and retaining workers in many industries. Managers demonstrate their commitment to safety through actions, rather than words, by following the rules themselves and requiring their workers to do the same. A common example of this distinction is a manager who considers it unacceptable to ask workers to work more quickly when it poses a safety risk.

Leadership theories are generally classified into trait-based and behavior-based categories. Specific models and examples are readily available for both categories. The current trend in leadership analysis is to focus on the situations that affect the manager's leadership style.



Trait Theories

Trait theories of leadership are based on psychologist Kurt Lewin's approach, who classified leadership styles in 1939. Lewin identified three leadership styles: autocratic, democratic and laissez faire.



An autocratic leadership relies on a strong hierarchy, and employees don't participate in making decisions.

The manager makes decisions and controls the obedience of subordinates. Workers are generally less creative under autocratic leadership, although this style can be productive in some circumstances. The most favorable environment for an autocratic style is one in which little time is available for group decisions. It also requires subordinates

to accept a leader as the person with the highest level of knowledge on the topic under discussion.

» Autocratic, democratic and laissez faire are the three leadership styles – or traits – identified by psychologist Kurt Lewin.

A democratic leadership style is also known as participative leadership, which Lewin considered to be the most generally effective style. Managers following this approach allow employees to

participate in making decisions, although managers still make the final decision.

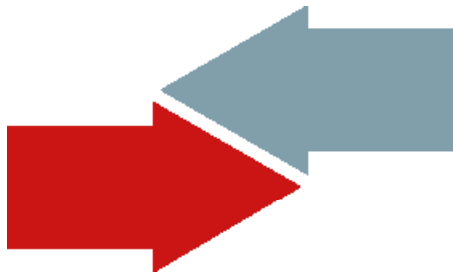
Managers in a democratic leadership delegate tasks and usually allow subordinates to control themselves rather than doing so directly. This leadership style typically provides employees with more motivation, which results in greater creativity and productivity.

Managers who use the laissez faire style of leadership generally provide little guidance for subordinates and exert almost no control over them. An organization that uses this leadership style is typically less productive than one using democratic leadership, although laissez faire can be effective in some situations. The most appropriate use of laissez faire leadership is when all members of the group are highly qualified in the topic under discussion.

Behavior Theories

Behavioral theories of leadership may be further classified into relationship-oriented behavior and task-oriented behavior. Relationship-oriented leadership focuses on the group members' attitudes and feelings, particularly with respect to their level of satisfaction with their leader.

Task-oriented leadership focuses on the problems that arise in attempting to meet an objective. Relationship-oriented leadership typically gives greater consideration to individual members of the group, while task-oriented leadership provides members with greater structure.



Leaders rarely exhibit these styles in pure form, and they're more likely to be found as general traits. Both of these behavioral styles are primarily found in leaders who emphasize a positive, cooperative style of leadership. These leaders tend to offer greater consideration in times of low stress and greater structure when stress is high.

Senior management must provide the resources for a ZAV culture and provide clear direction that unsafe practices are unacceptable. Supervision and control of workers are also important in achieving this view of workplace safety. The workers' level of commitment is a critical factor in the success of ZAV, which requires thorough training in the necessary work processes needed to maintain this type of safety culture.

Cooperation

Working toward a ZAV culture requires cooperation between members at levels of the organization, which typically involves a significant effort. Achieving the high degree of cooperation needed for this task tends to be challenging because it routinely involves people who have very different ideas of what workplace safety entails. ZAV seeks to influence all members of a group into sharing a positive safety attitude, while acknowledging that they may disagree on the best means of obtaining that safety.

The first step in motivating workers to increase their commitment to safety is typically to inform them of the organization's expectations of them. This information should be disseminated to anyone who performs tasks in the workplace, whether they're full-time employees, part-time employees or contractors. The idea that safety is a highly valued characteristic in the workplace must be shared with workers to obtain their commitment to a ZAV culture.

Transparency is also an important tool in fostering cooperation toward an improved safety culture. Workers are often embarrassed or ashamed when they're injured on the job in a workplace with a zero-incident objective because they feel they have broken a safety streak. These feelings can cause incidents to go unreported, and workers may even hide injuries. However, the ZAV philosophy requires all incidents to be reported, no matter how minor.

Communication on safety can help achieve the transparency needed to help workers understand that identifying someone to blame for the incident isn't the reason for reporting an accident or near-miss under the ZAV philosophy. Instead, the primary objective of these reports is to learn from the incident to prevent similar occurrences in the future. Organizations should issue regular reminders of the need for a commitment to safety. These reminders are often part of a safety campaign on a particular issue, such as the importance of workplace tidiness.

Resources

ZAV requires adequate resources for training in vocational safety as well as safety in a particular workplace. This training includes workplace orientation, the appropriate use of work equipment and personal protective equipment. The time needed to perform these tasks is also an important part of safety training. The training for each workplace should include the specific risks of that workplace and the procedures for addressing those risks.

Safety orientation should be performed at the organizational level to ensure consistent results for each worker. Orientation is commonly associated with new employees, although it's also necessary for other changes in circumstances, including new tasks and new equipment. Employees who have been absent from the workplace for an extended period of time also may require orientation, such as employees returning from maternity leave, long-term sick leave, or sabbaticals.

The principle behind the use of adequate resources for safety training includes the need to provide a safe working environment for all workers at all times. Changes in environment, equipment and procedures should always mandate a re-evaluation of the current training to make any needed adjustments. The pro-safety attitude and necessary safety processes will typically be highly visible in the ZAV workplace. For example, personal protective equipment will be readily available and used as required.



Safe working procedures are the rule, rather than the exception, under the ZAV philosophy. In particular, the need to complete a task quickly doesn't eliminate the requirement to follow these procedures. Haste always increases the risk of an incident, and ZAV requires that adequate time be allowed to complete a task. Workers in this type of environment are encouraged to follow the established safety procedures, rather than seeking an improvised solution to save time. Finally, safety briefings and training are a routine part of the agenda for team meetings under the ZAV philosophy.

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Implementation

The specific procedure for implementing a ZAV culture is highly dependent upon the organization. Each workplace is a unique combination of many variables, including individuals and situations. No standard solution exists for this procedure, although general guidelines are available. The most important factor in creating a ZAV culture is ensuring that workers already have a resilient pro-safety attitude before beginning this process. A risk assessment specific to each workplace is also a critical requirement for achieving zero incidents in the workplace.

The need to anticipate new risks is just as important as the need to learn from previous incidents in a ZAV culture. It also requires continuous improvement, meaning that safety is never finished, even when it's performed well. The importance of implementing ZAV cannot be understated, since a serious injury can result in long-term suffering and lifestyle changes to the individuals and their families. In addition to the human considerations, injuries also result in direct expenses for an organization and long-term losses due to harm to its public image and reputation.

The ZAV philosophy is often implemented in road safety, especially in Europe. Norway and Sweden in particular have policies that specifically state road traffic should not cause serious injuries. These implementations of ZAV make road safety a common responsibility for both system designers and drivers. They include safety measures such as speed management, proper use of roads and solutions for improving vehicles. Countries that implement the ZAV philosophy in road safety also make regular improvements to the traffic environment, such as installing barriers, increasing road space and creating separate routes for bicyclists and pedestrians.

Other methods of implementing a ZAV culture include starting a campaign to increase its visibility. It's important to note that many modern workplaces are already familiar with the principles included in the ZAV philosophy, even if those workers are unaware of the specific term. For example, many workplaces already perform continuous risk assessment, learn from incidents, and report all accidents and near-misses.



Summary

The ZAV philosophy considers all accidents to be preventable. This makes it a useful tool when setting numerical goals for incidents. For example, many organizations still accept a certain number of accidents for a particular workplace, which creates a type of budget for accidents. The primary problem with this policy is that it fails to result in continuous improvement as long as the workplace is “under budget” on incidents. While such quantitative targets may help to reduce incidents in the workplace when it goes “over budget,” all incidents should be reported and investigated.

About Sphera

For more than 30 years, Sphera has been committed to creating a safer, more sustainable and productive world by advancing operational excellence. Sphera is the largest global provider of Integrated Risk Management software and information services with a focus on Environmental Health & Safety (EHS), Operational Risk and Product Stewardship. The Chicago-based company serves more than 3,000 customers and over 1 million individual users across 70+ countries. Sphera is a portfolio company of Genstar Capital, a leading middle-market private equity firm focused on the software, industrial technology, financial services and healthcare industries.



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