

ANSI / AIHA / ASSE Z10-2012

An Overview of the Occupational Health & Safety Management Systems Standard

By Fred A. Manuele

On July 25, 2005, ANSI approved a new standard titled Occupational Health and Safety Management Systems (OHSMS). Its designation was ANSI/AIHA Z10-2005. That was a major development. For the first time in the U.S., a national consensus standard was issued for a

safety and health management system applicable to organizations of all sizes and types.

Per ANSI requirements, standards are reviewed every 5 years to be revised or reaffirmed. AIHA, then-secretariat, formed a committee to review Z10. The outcome of its work was a revised standard approved on June 27, 2012. Its designation was ANSI/AIHA Z10-2012. Shortly after approval, secretariat was transferred to ASSE.

All persons who give counsel on occupational safety and health management systems should own a copy of this standard and be thoroughly familiar with its content. The 2012 version reflects significant

changes and contains valuable support information in the advisory column and the appendixes.

The standard provides senior management with a well-conceived concept and action outline for a safety and health management system. As employers make changes to meet the standard's requirements, it can be expected that occupational injuries and illnesses will be reduced.

To identify differences and to develop a prioritized improvement plan, SH&E professionals should conduct a gap analysis to compare the elements in existing safety programs, processes or systems with the requirements in Z10. That comparison should be followed by a prioritized action plan for continual improvement.

Participation: Consensus

More than 40 safety professionals served on the committee that crafted the 2012 version of Z10. They represented industry, labor, government, business associations, professional organizations, academe and persons of interest.

The Z10 committee adhered strictly to the due diligence requirements applicable to development of an ANSI standard. A balance of stakeholders provided input and open discussion, which resulted in the group vetting each issue that was raised to an agreed-upon conclusion.

In crafting the current version of Z10, the intent was to present management system requirements that when effectively implemented would not only

achieve significant safety and health benefits, but also have a favorable effect on productivity, financial performance, quality and other business goals. The standard is built on the well-known plan-do-check-act (PDCA) process for continual improvement.

Many companies have issued safety policy statements in which they indicate their intent to com-

IN BRIEF

- The 2012 version of Z10 encourages employers to integrate safety-related systems within all other business processes.
- While management commitment is stressed, the standard places particular emphasis on employee participation and the importance of their feedback for improvement in systems and processes.
- A significant "shall" addition to the standard requires that top management have systems in place to assess risk.
- Safety issues to be recognized, prioritized and resolved are defined as hazards, risks and management system deficiencies.

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ply with or exceed all relative laws and standards. Those employers, particularly, will want to implement the Z10 provisions that are not part of their current safety and health management systems.

A Major Theme

Throughout all sections of Z10, from management leadership and employee participation through the management review provisions, a key theme is prominent: Processes for continual improvement are to be in place and implemented to ensure that:

- hazards are identified and evaluated;
- risks are assessed and prioritized;
- management system deficiencies and opportunities for improvement are identified and addressed;
- risk elimination, reduction or control measures are taken to ensure that acceptable risk levels are attained.

In relation to this theme, the following terms as defined by the standard are particularly applicable.

- **Hazard:** A condition, set of circumstances or inherent property that can cause injury, illness or death.
- **Exposure:** Contact with or proximity to a hazard, taking into account duration and intensity.
- **Risk:** An estimate of the combination of likelihood of an occurrence of a hazardous event or exposure(s) and severity of injury or illness that may be caused by the event or exposures.
- **Probability:** The likelihood of a hazard causing an incident or exposure that could result in harm or damage for a selected unit of time, events, population, items or activity being considered.
- **Severity:** The extent of harm or damage that could result from a hazard-related incident or exposure.
- **Risk assessment:** Process(es) used to evaluate the level of risk associated with hazards and system issues. (ANSI/AIHA/ASSE, 2012)

The definitions are repeated in Appendix F, which provides guidance on risk assessment. Although *acceptable risk* is not a term included in the standard's definitions, it is made clear in several places that the goal is to achieve acceptable risk levels. For example, Section 6.4, Corrective and Prevention Actions, clearly states that an organization is to have processes in place to ensure that acceptable risk levels are achieved and maintained. Appendix F states, "The goal of the risk assessment process including the steps taken to reduce risk is to achieve safe working conditions with an acceptable level of risk."

Z10 Is a Management System Standard

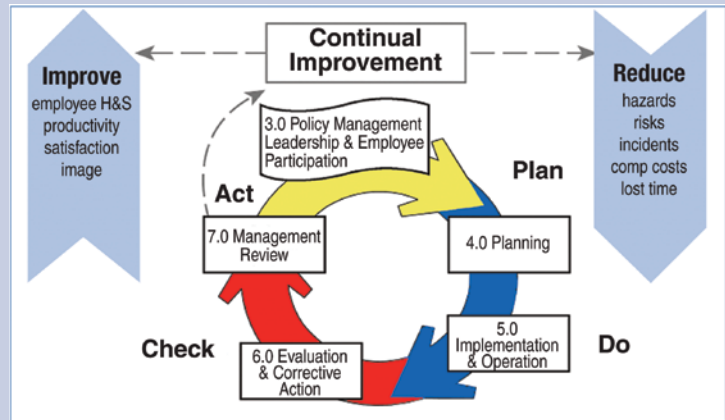
Z10 is a management system standard, not a specification standard. What is the difference? A management system standard provides process and system guidelines for a provision without specifying the details on how the provision is to be carried out. A specification standard contains those details.

Z10 Section 5.2B illustrates the difference:

Section 5.2: Education, Training, Awareness and Competence. The organization shall establish processes to:

Figure 1

Plan-Do-Check-Act Concept



B. Ensure through appropriate education, training or other methods that employees and contractors are aware of applicable OHSMS requirements and their importance are competent to carry out their responsibilities as defined in the OHSMS. (ANSI/AIHA/ASSE, 2012)

That is the extent of the "shall" requirements for Section 5.2B. The explanatory part of the standard contains comments on subjects for which training should be given, such as safety design, incident investigation, hazard identification, good safety practices and the use of PPE. However, those comments are advisory and not a part of the standard.

If Z10 were written as a specification standard, requirements comparable to the following might be extensions of 5.2B.

- At least 12 hours of training shall be given initially to engineers and safety professionals in safety through design, to be followed annually with a minimum of 6 hours of refresher materials.
- All employees shall be given a minimum of 3 hours training annually in hazard identification.
- All employees shall be given a minimum of 4 hours training annually in the use of PPE.
- All training activities conducted as a part of this provision shall be documented and records shall be retained for a minimum of 5 years.

Compatibility & Harmonization

One goal of the Z10 committee was to ensure that it could be easily integrated into any management system an organization has in place. That goal was met. As to structure, the standard is compatible and harmonized with quality and environmental management system standards—the ISO 9000 and ISO 14000 series at the time of the approval of Z10.

Employment Implications

A brief verbal survey of safety degree program professors was conducted to determine what qualifications were being stressed by human relations personnel when they visited campuses to recruit. The survey found that they want candidates who are equipped with the knowledge and skill to give counsel on many of the provisions in Z10. In that respect, safety professionals should give particular attention to certain provisions. Those provisions are in sections: 4.0, Planning; 5.0, Implementation and Operations; and 6.0, Evaluation and Corrective Action.

The Z10-2012 standard is built on the well-known plan-do-check-act process for continual improvement. It provides senior management with a well-conceived concept and action outline for a safety and health management system.

In summary, those sections state that employers shall establish and implement processes to:

- Identify and control hazards in the design process and when changes are made in operations. This requires safety design reviews for new and altered facilities and equipment.
- Have an effective management of change system in place through which hazards and risks are identified and evaluated in the change process.
- Assess the level of risk for identified hazards for which knowledge of risk assessment methods will be necessary.
- Utilize a prescribed hierarchy of controls in dealing with hazards to achieve acceptable risk levels for which the first step is to attempt to design out or otherwise eliminate the hazard.
- Avoid bringing hazards into the workplace by incorporating design and material specifications into procurement contracts for facilities, equipment and materials.

Certification Implications

Provisions in Z10 have a direct relationship to the content of the CSP examinations. Those examinations are reviewed about every 5 years to ensure that they are current with respect to what safety professionals actually do. In that review process, safety professionals are asked to describe the content of their work at the time the survey is made.

The author compared the content of the Comprehensive Practice Examination Guide issued by BCSP in 2011 with that issued in 2006. Substantial changes were made in the later edition, many of which relate to principle requirements of Z10. For example, a domain in the sixth edition is devoted entirely to hazard identification and analysis and risk assessment. It is the centerpiece of the examination. Knowledge requirements for safety through design and management of change are more extensive as well.

Z10 represents sound, current practice. Having knowledge of and experience with its provisions is required to pass the CSP examination.

Continual Improvement: The PDCA Concept

Z10 is built on the well-known PDCA process for continual improvement. Understanding this process is necessary to effectively implement the standard. The introduction to Z10 includes a chart based on the PDCA concept that emphasizes continual improvement.

Throughout the standard, the words *process*, *processes*, *systems* and *continual improvement* are often repeated. Z10 emphasizes a continual improvement approach. As noted, the standard outlines the processes to be put in place to have an effective safety and health management system, not the specifics. Each organization must determine process specifics based on its unique hazards and risks.

A Review of the Standard's Provisions

Brief comments are made here to provide an overview of the standard's major sections. With respect to these remarks, keep in mind that Z10 is

presented in two columns. The standard is in the left column; the explanatory and advisory material is in the right column—the E column.

As is common in ANSI standards, requirements are identified by the word *shall*. An organization that chooses to conform to the standard is expected to fulfill the shall requirements. The word *should* is used to describe recommended practices or give an explanation of the requirements.

Numerous recommended practices and advisory comments are included in the E column and in the appendices to assist in the implementation of the standard; they are not requirements.

Section 1.0 Scope, Purpose & Application

Section 1.1 Scope defines the minimum requirements for OHSMS. According to the advisory data for the scope, the intent is to provide a systems approach for continual improvement in safety and health management, and to avoid specifications. Furthermore, the writers recognized the uniqueness of the culture and organizational structures of individual organizations and the need for each entity to “define its own specific measures of performance.”

Section 1.2 Purpose indicates the primary purpose of the standard: To provide a management tool to reduce the risk of occupational injuries, illnesses and fatalities.

Section 1.3 Application states that the standard is applicable to organizations of all sizes and types. Z10 contains no limitations or exclusions by industry, business type or number of employees. The introduction and advisory column comments opposite Section 1.3 state that the standard's structure allows integration with quality and environmental management systems. Doing so is a good idea.

Section 2.0 Definitions

As is typical in ANSI standards, certain terms are defined as used in the standard. Safety professionals should become familiar with them.

Section 3.0 Management Leadership & Employee Participation

Section 3.0 is the standard's most important section. Safety professionals will surely agree with the premise that top management leadership and effective employee participation are crucial for OHSMS success. Top management leadership is vital. An organization's safety culture derives from decisions made at that level. And, continual improvement cannot be achieved without effective direction from management. Key statements in the shall column of the standard follow:

3.1.1 Top management shall direct the organization to establish, implement and maintain an OHSMS.

3.1.2 The organization's top management shall establish a documented occupational health and safety policy.

3.1.3 Top management shall provide leadership and assume overall responsibility.

3.2 The organization shall establish a process to ensure effective participation in the OHSMS by its employees at all levels.

As management provides direction and leadership, assumes responsibility for the OHSMS and ensures effective employee participation, it is important to keep the standard's purpose in mind: To reduce the risk of occupational injuries, illnesses and fatalities. That will be best accomplished if personnel understand that achieving acceptable risk levels is the desired outcome of every safety and health management process. Appendixes A, B and C provide supporting data on policy statements, roles and responsibilities, and employee participation.

Section 4.0 Planning

In the PDCA process, planning is the first step. As would be expected, Section 4.0 Planning sets forth the planning process to implement the standard and to establish improvement plans. The goal is to identify and prioritize issues within a safety management system that need improvement. Those issues are defined as hazards, risks and management system deficiencies. Throughout, the standard emphasizes having systems and processes in place to identify hazards and assess their accompanying risk and to identify the management deficiencies related to them.

In the continual improvement process, information that defines opportunities for further improvement in the OHSMS and, thereby, risk reduction, is fed back into the planning process for additional consideration.

Section 4.1 requires that a company conduct a comprehensive review to identify the differences between existing systems and the requirements of the standard. The review shall encompass: business and operational processes that are relative to the standard's requirements; operational issues mentioned in the planning section (hazards, risks and management system deficiencies); and allocation of the resources necessary to achieve and maintain an acceptable risk level; applicable regulations and standards; content of risk assessments made; management system audits; and, as emphasized in the standard, the means established for employee participation and contribution.

Section 4.2 sets forth the requirements for assessment and prioritization.

The organization shall establish a process to assess and prioritize OHSMS issues on an ongoing basis. The process shall:

- A) Assess the impact on health and safety of OHSMS issues, and assess the level of risk for identified hazards;
- B) Establish priorities based on factors such as the level of risk, potential for system improvement, standards, regulations, feasibility and potential business consequences;
- C) Identify underlying causes and other contributing factors related to system deficiencies that lead to hazards and risks.

Following are excerpts from selected explanatory notes in sections 4.2A and 4.2B.

At E4.2A, the standard's writers offer advice on risk assessments and the factors that they should include, such as potential hazards and exposures; frequency of exposure; human behavior; controls in place and their effectiveness; and the *potential severity of hazards* (emphasis added for the last point).

At E4.2B, it is made clear the business results that may relate to the standard's application may include either increased or decreased productivity, sales, net income or public image.

Thus, employers need processes to identify and analyze hazards, assess the risks deriving from those hazards, and establish mitigation priorities which, when acted on, will attain acceptable risk levels. Appendix D provides guidance on assessment and prioritization.

4.3 Objectives, says: "The organization shall establish a process to set documented objectives, quantified where practicable, based on issues that offer the greatest opportunity for OHSMS improvement and risk reduction."

4.4 Implementation Plans and Allocation of Resources follows logically in accord with a sound problem-solving procedure. After hazards, risks and shortcomings in safety management systems have been identified and objectives have been outlined, a documented plan must be established and implemented to achieve the objectives.

Item B in Section 4.4 says that an employer must assign adequate resources to achieve the objectives outlined in the implementation plans. It is an absolute that if adequate resources are not provided, acceptable risk levels cannot be maintained.

Section 5.0 Implementation & Operation

This section defines the operational elements that are required for implementation of an effective OHSMS. These elements provide the backbone of an OHSMS and the means to pursue the objectives from the planning process. Note the phrase "the backbone of an OHSMS."

5.1 OHSMS Operational Elements are to be integrated into the management system. A new and important addition to Z10 appears in this section.

Section 5.1.1 Risk Assessment

"The organization shall establish and implement a risk assessment process(es) appropriate to the nature of hazards and level of risk."

Adding this shall provision reflects a worldwide trend emphasizing the importance of risk assessments. Appendix F provides a six-page overview of risk assessment and includes data on several techniques. Having knowledge of preliminary hazards analysis, what-if/checklist analysis, and failure modes and effects analysis and how they are applied will satisfy most needs of safety professionals as they give counsel on risk assessment.

In applying hazard analysis and risk assessment techniques, SH&E professionals may use qualitative and quantitative methods. Mathematical calculations required will not be extensive.

Appendix F also gives an example of a risk as-

The standard emphasizes having systems and processes in place to identify hazards and assess their accompanying risk and to identify the management deficiencies related to them.

assessment matrix. Most risk assessment matrixes set forth incident probability categories, severity of harm or damage ranges, and resulting risk levels. Such a matrix can serve as a valuable instrument when working with decision makers to set risk levels and prioritize corrective actions. Variations in published risk assessment matrixes are substantial. A safety professional should customize the matrix to the organization's needs.

Section 5.1.2 Hierarchy of Controls

Provisions for the use of a specifically defined hierarchy of controls are outlined. The organization shall apply the methods of risk reduction in the order prescribed. This is how the standard and the explanatory comments read.

The organization shall establish a process for achieving feasible risk reduction based upon the following preferred order of controls:

- A) elimination;
- B) substitution of less hazardous materials, processes, operations or equipment;
- C) engineering controls;
- D) warnings;
- E) administrative controls;
- F) personal protective equipment.

Sound management principles shall be applied as decisions are made with respect to the hierarchy of controls. Decision makers should consider the nature of the hazards and their accompanying risks; scope of risk reduction that must be achieved; necessity to adhere to applicable standards and regulations, both external and internal; what is considered good practice in the industry; available technology; and cost effectiveness.

A hierarchy is a system of persons or things ranked one above the other. The hierarchy of controls in Z10 provides a systematic way of considering steps in a ranked and sequential order to select the most effective means of eliminating or reducing hazards and their risks. Acknowledging the premise that risk reduction measures should be considered and taken in a prescribed order represents an important step in the evolution of the practice of safety.

Appendix G provides a pictorial and verbal display of the hierarchy of controls listed in 5.1.1 with application examples for each element.

Section 5.1.3 Design Review & Management of Change

The following excerpts indicate what Z10 requires for design reviews and management of change. To repeat for emphasis, these are shall provisions.

The organization shall establish a process to identify, and take appropriate steps to prevent or otherwise control hazards at the design and redesign stages, and for situations requiring management of change to reduce potential risks to an acceptable level. The process for design and redesign and management of change shall include:

- A) identification of tasks and related health and safety hazards;
- B) recognition of hazards associated with hu-

man factors including human errors caused by design deficiencies;

C) review of applicable regulations, codes, standards, and internal and external recognized guidelines;

D) application of control measures (hierarchy of controls, Section 5.1.2);

E) a determination of the appropriate scope and degree of the design review and management of change;

F) employee participation.

The Design Process

The author and others have long professed that the most effective and economical way to achieve acceptable risk levels is to have the hazards from which the risks derive addressed in the design process. That is what this standard requires. It is an exceptionally important element in this standard. Impact of its application can be immense.

Management of Change

Employers must have processes in place to identify and prevent or otherwise control hazards and reduce the potential risks associated with them when existing operations, products, services or suppliers change. Getting effective management of change procedures in place is not easy.

The author's research shows that for all occupations many incidents that result in serious injury occur when out-of-the-ordinary situations arise, particularly when unusual and nonroutine work is being performed and when sources of high energy are present (Manuele, 2008, p. 51; 2012, p. 166). Safety professionals should study thoroughly the standard's management of change requirements to determine how they might promote the culture change necessary for their implementation. Applying change management methods will be necessary.

Note that sections 5.1.3.1 and 5.1.3.2 are extensions of 5.1.3 Design Review and Management of Change.

Section 5.1.3.1 Applicable Life Cycle Phases

The provision in Section 5.1.3.1 says that an organization must consider the entirety of the life cycle of the subject being designed or redesigned.

At E5.1.3.1, the standard's writers advise that the design process may apply in all or some of the following: concept stages; preliminary design; detailed design; build or purchase process; commissioning, installing and debugging processes; production and maintenance operations; and de-commissioning activity.

Section 5.1.3.2 Process Verification

The organization shall have processes in place to verify that changes in facilities, documentation, personnel and operations are evaluated and managed to ensure safety and health risks arising from these changes are controlled.

Section 5.1.4 Procurement

Although the requirements for procurement are plainly stated and easily understood, they are brief

in relation to the enormity of what will be required to implement them. An interpretation of the requirements could be: "Safety practitioners, you are assigned the responsibility to convince management and purchasing agents that, in the long term, it can be very expensive to buy cheap." This is how the standard and the explanatory data read.

The organization shall establish and implement processes to:

A) Identify and evaluate the potential health and safety risks associated with purchased products, raw materials, and other goods and related services before introduction into the work environment;

B) Establish requirements for supplies, equipment, raw materials, and other goods and related services purchased by the organization to control potential health and safety risks;

C) Ensure that purchased products, raw materials, and other goods and related services conform to the organization's health and safety requirements.

Appendix I provides guidance on the procurement process. Adding an element to an OHSMS designed to prevent bringing hazards into the workplace could have startling positive results in reducing the frequency and severity of hazardous incidents and exposures.

Section 5.1.5 Contractors

Section 5.1.5 Contractors requires that an organization have processes in place to avoid injury and illness to its employees from activities of contractors and to the contractor's employees from the organization's operations. Many entities have such procedures in place.

One of the shall provisions indicates that the process is to include "contractor health and safety performance criteria." That implies, among other things, vetting a contractor with respect to its previous safety performance before awarding a contract.

Section 5.1.6 Emergency Preparedness

To meet the requirements of the provision in section 5.1.6, an organization must have processes in place to "to identify, prevent, prepare for and/or respond to emergencies." Also, an employer should conduct periodic drills to test the emergency plans, which are then updated.

Section 5.2 Education, Training, Awareness & Competence

An organization is required to determine the knowledge needed to achieve competence; ensure that employees are aware of the OHSMS requirements; remove any barriers to participation in education; ensure that training is ongoing and is delivered in a language trainees understand; and ensure that trainers are competent. This section has six alpha-designated provisions, three of which contain the words *competence* or *competent*. Thus, competence is emphasized. Employees and contractors are to be competent to fulfill their responsibilities. Trainers are to be competent to train.

These provisions are also applicable to contractors. Interestingly, both safety design and procurement are mentioned in the examples of training that should be given. This is how item E5.2A reads.

E5.2A: Training in OHSMS responsibilities should include, for example, training for: engineers in safety design (e.g., hazard recognition, risk assessment, mitigation, etc.); those conducting incident investigations and audits for identifying underlying OHSMS nonconformances; procurement personnel on impact of purchasing decisions; and others involved with the identification of OHSMS issues, methods of prioritization and controls.

Section 5.3 Communication

An organization is to institute processes to: communicate information about the progress being made on its implementation plan; ensure prompt reporting of incidents, hazards and risks; promote employee involvement so that they make recommendations on hazards and risks; inform contractors and *relevant external interested parties* of changes made that affect them; and remove barriers to all of the foregoing. With respect to contractors, item E5.3D provides guidance as follows:

E5.3D: The work activities of contractors can pose additional hazards for both employees and others in the workplace. Processes established for consultation with contractors should ensure risks will be appropriately addressed using good OHS practices. This consultation should include discussion and resolution of issues of mutual concern.

Section 5.4 Document & Record Control Process

The standard specifies documentation requirements for certain systems in several places. These processes should fit the requirements of the OHSMS in place. The advice given in the informational column at E5.4 is that the documentation procedures put in place should be commensurate with the size of an organization as represented by the number of employees, the complexity of operations and its inherent hazards and risks.

Documents shall be updated as needed, legible, adequately protected against damage or loss, and retained as necessary.

Section 6.0 Evaluation & Corrective Action

This section outlines the requirements for processes to evaluate the performance of the safety management system, to take corrective action when shortcomings are found and to provide feedback to the planning and management review processes. Communications on lessons learned are to be fed back into the planning process. The expectation is that new objectives and action plans will be written in relation to what has been experienced.

Section 6.1 Monitoring, Measurement & Assessment

The organization shall establish and implement a process to monitor and evaluate hazards,

The most effective and economical way to achieve acceptable risk levels is to have the hazards from which the risks derive addressed in the design process. That is what this standard requires.

Z10-2012 Table of Contents

The Z10-2012 table of contents provides a base for review and comparison with the safety management systems with which safety practitioners are familiar.

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New appendixes in the 2012 version are: F) Risk Assessment; I) Procurement; J) Contractor Safety and Health; M) Management of Change; N) Management System Standard Comparison. While the appendixes are not part of the standard, they can be helpful to those with implementation responsibility.

risks and their controls to assess OHSMS performance. These processes shall include some or all of the following methods, depending on the nature and extent of identified hazards and risks: workplace inspections and testing; assessments of exposures; incident tracking; measuring performance in relation to legal or other requirements; or other methods selected by the organization. Results of the monitoring processes shall be communicated as appropriate.

Section 6.2 Incident Investigation

The standard says:

The organization shall establish a process to report, investigate and analyze incidents in order to address OHSMS nonconformances and other factors that may be causing or contributing to the occurrence of incidents. The investigations shall be performed in a timely manner.

One advisory comment highlights the value in feeding lessons learned from investigations into the planning and corrective action processes.

Section 6.3 Audits

An organization shall:

Have audits made periodically with respect to application of the provisions in the OHSMS; ensure that audits are made by competent persons not attached to the location being audited; document and communicate the results; have auditors communicate immediately on potentials for serious injuries or illnesses and fatalities so that swift corrective action can be taken.

Audits are to measure the organization's effectiveness in implementing the OHSMS elements. Thus, audits are to determine whether the management systems in place effectively identify hazards and control risks. Although many safety professionals are familiar with safety audit processes, they should review what the standard requires and determine whether it will be beneficial to revise their audit systems. Appendix L is helpful in this respect; it contains a sample audit protocol that matches all of the sections of Z10.

In the advisory column, the standard's writers make clear that audits are to be system oriented rather than compliance oriented.

Also, and importantly, E6.3B comments on the independence of auditors. While it says that "audits should be conducted by individuals independent of the activities being audited," it also says that "this does not mean that audits must be conducted by individuals external to the organization."

Section 6.4 Corrective & Preventive Actions

Revisions made in the 2012 version of Z10 are substantial in this section. It defines what the organization shall do to fulfill the provisions of this section.

The organization shall establish and implement corrective and preventive action processes to:

- A) Address nonconformances and hazards that are not being controlled to an acceptable level of risk.

B) Identify and address new and residual hazards associated with corrective and preventive actions that are not being controlled to an acceptable level of risk.

C) Expedite action on high-risk hazards (those that could result in fatality or serious injury/illness) that are not being controlled to an acceptable level of risk;

D) Review and ensure effectiveness of corrective and preventive actions taken.

It is made clear that organizations must identify hazards, risks and shortcomings in management systems, and take corrective action to achieve acceptable risk levels. Furthermore, the standard says that organizations are to expedite appropriate actions on high-risk hazards.

Section 6.5 Feedback to the Planning Process

Section 6.5 is a communication provision pertaining to all shortcomings in the safety management system. Its purpose is to provide a base for revision in the planning process. The standard says that the communication process established shall ensure a proper flow of the information developed in the monitoring and measurement systems, audits, incident investigations and in the corrective actions taken to those involved in the planning process to achieve continual improvement endeavors.

Section 7.0 Management Review

This section requires that OHSMS performance be reviewed periodically and that management take appropriate actions in response. The management review section and extensive advisory comments pertaining to it are must reads. As noted, the Management Leadership and Employee Participation section is the most important in Z10. The section on management review is a close second. Periodically reviewing management system effectiveness is an important part of the PDCA process.

Section 7.1 Management Review Process

The organization shall establish and implement a process for top management to review the OHSMS at least annually, and to recommend improvements to ensure its continued suitability, adequacy and effectiveness.

E7.1: Management reviews are a critical part of the continual improvement of the OHSMS.

Some subjects must be reviewed at least annually: progress in reducing risk; effectiveness of processes to identify, assess and prioritize risk and system deficiencies; effectiveness in addressing underlying causes of risks and system deficiencies; the extent to which objectives have been met; and performance of the OHSMS in relation to expectations.

Section 7.2 Management Review Outcomes & Follow-Up

Section 7.2 requires that management determine whether changes need to be made in "the organization's policy, priorities, objectives, resources or other OHSMS elements to establish the future direction of the OHSMS."

In accord with good management procedures, senior management is expected to give direction to implement the changes needed in OHSMS and processes to continually reduce risks. The standard requires that "results and action items from the management reviews shall be documented and communicated to affected individuals, and tracked to completion."

This provision gives the needed importance to the management review process. Action items are to be recorded, communicated to those affected, and followed through to a proper conclusion.

Advisory Content & Appendices

Z10 provides exceptionally valuable explanatory and supportive data in the advisory column and in the appendixes. Alpha-numerical pages 1 through 29 pertain to the standard's requirements and the advisory material. Pages 30 through 88 are devoted to the appendixes. That is about a 65% increase in the space devoted to appendixes compared to the 2005 version. A safety professional must have a copy of the standard to appreciate the value of the guidance material and the appendixes.

Conclusion

This revision to Z10 is important work. Prudent safety professionals will study the standard's requirements to determine whether additional skills and capabilities are needed and take steps to acquire those skills. Having done so, they will be equipped to guide on implementing safety management system elements that may not exist in the organizations to which they give counsel. **PS**

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ASSE is secretariat of the Z10-2012 standard. Learn more at www.asse.org/shoponline/products/Z10_2005.php.