A new American management systems standard in occupational safety and health – ANSI Z10

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INTRODUCTION

Management systems exist throughout the United States and the world. Examples of such systems are the ISO 9001[1] and ISO 14001,[2] the international occupational safety and health (OSH) management systems (OSHMS) from ILO,[3] OHSAS 18001,[4] the European Union EEC 1836/93,[5] the British BS 8800,[6] and the Australian SafetyMap.[7] Management systems in OSH exist among American organizations, companies, and the government. For example, there are the Occupational Safety and Health Administration's (OSHA)

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Voluntary Protection Program (VPP),[8] the American Chemistry Council (ACC) Responsible Care[9] management system; the AIHA OHSMS,[10] Six Sigma,[11] the API EHSMS,[12] and many individual company OHSMSs.

According to ISO Guide 72:2000[13] "Guidelines for the justification and development of management system standards," a system should be able to establish policy and objectives and to achieve those objectives using:

- An organizational structure with roles, responsibilities, authorities
- Systematic processes and associated resources
- Measurement and evaluation methodology to assess performance
- A review process to ensure problems are corrected and opportunities recognized and implemented when justified.

Why another standard? In the U.S. there is no *consensus standard* in occupational safety and health management systems that would be comparable and compatible to national and international standards, and that would encompass all the principles of OSHMS of such standards. Consequently, the American Standards Institute (ANSI) with coordinating efforts of the American Industrial Hygiene Association, as the Secretariat, convened a committee of 40+ OSH subject matter experts–called the Z10 Accredited Standards Committee (ASC) on Occupational Health and Safety Management Systems, which worked for the last four years to develop a new OHSMS consensus standard for the U.S.[14] The Z10 Committee represented industry, labor, government, and other groups with subject matter

experts in OSH. AIHA has provided a link to the roster of the Z10 Committee which can be found at #15 reference.[15]

OSH PROGRAMS VERSUS MANAGEMENT SYSTEMS

In the U.S., certain aspects of occupational safety and health are addressed through federally mandated programs, e.g., Confined Spaces, Respiratory Protection, Bloodborne Pathogens, Hazard Communication, Hearing Conservation, and others; State governments also have required programs. There are also voluntary guidelines/ programs from OSHA, Centers for Disease Control, and from consensus organizations such as ANSI and NFPA. A final research report[16] to NIOSH indicates that in general, most of the mandated programs focus on *compliance* and have *input*, *process*, and *output*. In contrast, systems focus on *performance* and contain the same three elements, and in addition, they incorporate a feedback loop to evaluate mechanisms, performance, and organizational and worker OSH for continual improvement. Programs are simpler than systems, they are contained within a system, but do not reflect system-thought or structures. To coordinate these programs, a systematic, integrated approach would be more useful than a disparate collection of programs, i.e., a comprehensive management system framework that can recognize and manage any risk to the mental and physical safety and well-being of employees, contractors, volunteers, and visitors in the workplace. The research report also included the analysis of the effectiveness of the Integrated Safety and Management

System (ISM) of U.S. Department of Energy Lawrence Berkeley National Laboratory (LBNL), in Berkeley, California. The LBNL data indicated improved OSH performance and injury reduction since the implementation of ISM system. A report from the U.S. General Accounting Office indicated that the use of a management system can improve organizational performance, including performance in the occupational health and safety area.[17]

The OSHA Voluntary Protection Program (VPP)[8] and the OSHA Consultation Program indicated the benefits of having an OSH management system in place. Several individual companies having implemented their own OSH management systems also have indicated their benefits (presented at AIHA Conferences, but are unpublished).

SCOPE AND GOALS OF THE ANSI Z10

The scope of the ANSI Z10 standard was developed to present OHS management principles, provide guidance to help organizations enable continuous improvement; enable organizations to integrate OHS management into their overall business management systems, and to be compatible with relevant worldwide management standards (e.g., ISO 9000 and 14000) and OHS management practices in common use in the United States.[18,19]

The goals of the ANSI Z10 were to develop a national OSH management standard that would be useful, clear and understandable to users, free of parochial biases, and have the wide range of application.[18,19]

OVERVIEW OF THE ANSI Z10

The ANSI Z10 OHS management standard meets all of the above criteria. It uses Deming's /Shewhart's management Plan-Do-Check-Act framework for improving the workplace and products, and it adapted principles from the most relevant OSH management systems into an American standard compatible with principal national

and international standards. The ANSI Z10 incorporates the following six elements:

1. Management leadership
2. Employee participation
3. Planning
4. Implementation and operation of the OSH management system
5. Evaluation and corrective action
6. Management review

The OSH management system cycle (see Figure 1) includes an initial planning process, and implementation of the management system, followed by a process for checking the performance of these activities and taking appropriate corrective actions. The next step involves a management review of the system for suitability, adequacy and effectiveness against its policy and this standard. The complete cycle is repeated, resulting in ongoing continual improvements in occupational health and safety. In addition to the direct benefits of improved employee health and safety, a management system can also yield positive business outcomes, including enhanced productivity, financial performance, and employee satisfaction.

THE ULTIMATE GOAL OF ANSI Z10

The ultimate goal of implementing these OSH management system elements is the reduction of risks, injuries, illnesses, fatalities, workers' compensation costs, and lost time. The effective

management system can also provide many other benefits to the organization, e.g., improved employee productivity and job satisfaction, better organization image and employee morale, fulfillment of legal obligations (compliance with laws and regulations), reduced turnover of personnel, reduced lost workdays, improved employee health status, improved product quality, reduction or elimination of property damage due to incidents, reduced business interruption costs, and reduced impact on the environment due to incidents.

The ANSI Z10 standard states that "Some organizations already have (a) highly developed, effective OHS management system appropriate to their needs but that may not conform precisely to this standard. In those instances, the standard may serve as a voluntary tool to identify possible opportunities to improve their systems."

THE FORMAT OF THE ANSI Z10

The standard is presented into a two-column format. The left column contains the "shall" statements which are the requirements of the standard. The right-hand column contains statements which are the non-mandatory parts of the standard and are provided for guidance. These non-mandatory parts use the word "should" to describe recommended practices, or explanatory notes to the requirements indicated on the left column. The Z10 standard also contains Appendices
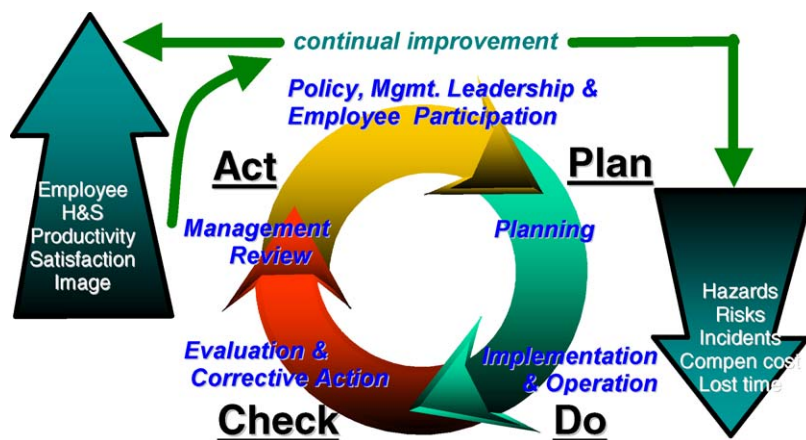

Figure 1. The OSH management system cycle of the ANSI Z10.

(Annexes) which are provided as practical examples to the users.

ELEMENTS OF THE ANSI Z10 STANDARD

1. *Management Leadership and Employee Participation*
   - Management Leadership
     - Occupational Health and Safety Management System
     - Policy
     - Responsibility and Authority
   - Employee Participation
2. *Planning*
   - Initial and Ongoing Reviews
     - Initial Review
     - Ongoing Review
   - Assessment and Prioritization
   - Objectives
   - Implementation Plans and Allocation of Resources
3. *Implementation and Operation of the Occupational Health and Safety System*
   - OHSMS Operational Elements
     - Hierarchy of Controls
     - Design Review and Management of Change
     - Procurement
     - Contractors
     - Emergency Preparedness
   - Education, Training, and Awareness
   - Communication
   - Document and Record Control Process
4. *Evaluation and Corrective Action*
   - Monitoring and Measurement
   - Incident Investigation
   - Audits
   - Corrective and Preventive Actions
   - Feedback to the Planning Process
5. *Management Review*
   - Management Review Process
   - Management Review Outcomes and Follow-up

ANNEXES

- Policy Statements
- Roles and Responsibilities
- Employee Participation
- Initial/Ongoing Review
- Assessment and Prioritization
- Objectives/Implementation Plans

- Hierarchy of Controls
- Incident Investigation Guidelines
- Audit
- Management Review Process
- Bibliography and References

HOW DOES THE ANSI Z10 STANDARD COMPARE TO OTHER OSH SYSTEMS?

The ANSI Z10 is comparable to most OSH management system standards. It shares *all* the 16 major variable elements and sub-elements included in management standards from Australia/New Zealand, and the U.S. AIHA OHSMS.

ANSI PROCESS AND APPROVAL CRITERIA

ANSI facilitates the development of American National Standards by accrediting the procedures of standards developing organizations such as AIHA, ASSE, and others. Accreditation by ANSI signifies that the procedures used by the standards body in connection with the development of American National Standards meet essential requirements for openness, balance, consensus, and due process.

Specific to the Z10 standard, the ANSI process included guidelines for operating the Accredited Standards Committee (ASC). These guidelines were modified and approved by the ASC. They defined its purpose, terms and definitions, membership, meetings, and voting procedures. The ASC membership included requirements for member qualification and completing and submitting an application for membership. The term and tenure of the committee members, and conflict of interest were defined. The ANSI Z10 process also included AIHA-Secretariat review and recommendations regarding applications for membership, diverse interests, combined interests, committee size, balance, and interest categories. The responsibilities of Z10 ASC members and member-participation were clearly defined. The ASC membership roster is available to the public.[15] About 40+ OSH experts participated in the development of Z10 ASC.

Subcommittees were formed and charged with specific tasks, e.g., Editorial Subcommittee, References, Glossary, Annexes Subcommittees, as needed during the development of the standard. The operating guidelines defined the participation of other Z10 ASC participants, i.e., observers, technical resource people; formal internal communications, external communications, as well as conducting meetings, Z10 ASC meetings, open meetings, quorum, guidelines for agendas, guidelines for meetings, general, content of agendas, meeting minutes and confidential information, voting procedures, standards approval, position, alternate voting, voting period, and appeals if are needed. (For inquiries about the operating Z10 guidelines, contact the primary author or AIHA.)

The draft standard was revised by the Z10 ASC after it was sent out for its first informal public review in 2003. The official 45-day public review occurred in September 2004. The draft standard was revised after all review comments were addressed, and then submitted to ANSI in 2005. On July 25, 2005, the Z10 standard was granted final approval by ANSI.[20] Printed copies are available from AIHA since September 2005.

SUMMARY

The ANSI Z10 Accredited Standards Committee on Occupational Health and Safety Management Systems completed the standard in 2004, the standard received two public reviews and the American Standards Institute approved it in 2005. The standard may be considered a success if it is widely accepted, adopted, and used;[18,19] if users find it easy to read and find information useful to organizations of varying OSH sophistication; and if the standard helps the organizations move toward a management system for organizing the OSH programs.[18,19] The standard may be considered not so successful if it is not widely accepted, adds unnecessary burdens to the users' effective programs, or if it is perceived as providing "cookie-cutter" requirements rather than generally applicable guidance.

The final version of the ANSI Z10 standard is available since September 2005 from: American Industrial Hygiene Association (AIHA), 2700 Prosperity Ave., Ste. 250, Fairfax, VA 22031-4319, Tel.: (703) 849 8888; fax: (703) 207 3561, www.aiha.org.

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