THE OCCUPATIONAL SAFETY AND HEALTH ACT of 1970 (OSH Act) does not directly address the responsibility of employers to provide health and safety information and instruction to employees. However, Section 2 of the OSH Act does encourage employers and employees to reduce workplace safety and health hazards through the institution of new and existing programs, and by specifically providing for training programs to increase the number and competence of personnel engaged in the field of occupational safety and health (OSHA 1970).

In terms of employer training responsibilities and duties, Section 5(a)(2) of the OSH Act requires each employer to “comply with occupational safety and health standards promulgated under this Act,” and currently more than 100 of these standards contain training requirements (OSHA 1970). These training requirements reflect the Occupational Safety and Health Administration’s (OSHA) belief that training is an essential part of every employer’s safety and health program for protecting workers from injuries and illnesses (NIOSH 2004).

This is also reflected in OSHA enforcement activities in the construction industry: in 2008, two of the top ten most frequently cited violations [29 CFR Sections 1926.503, and 1926.454] were directly related to training (OSHA 1995 and 1996a).

In Title 29 of the Code of Federal Regulations, Section 1908.2, Consultation Agreements–Definitions, OSHA defines training as the planned and organized activity of a consultant to impart skills, techniques, and methodologies to employers and their employees to assist them in establishing and maintaining employment and a place of employment that is safe and healthful (OSHA 2000). While businesses sometimes object to the specific wording of an OSHA standard, there is little written in occupational safety and health

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**LEARNING OBJECTIVES**

- Be able to utilize three methods recommended by OSHA for prioritizing training needs.
- Be able to identify examples of both mandated and implied training requirements in OSHA standards.
- Learn how to use the OSHA Voluntary Training Guidelines to determine if training is needed.
- Be able to identify training needs and content, training goals and objectives, and develop learning activities. Conduct the training, evaluate its effectiveness, and develop recommendations to improve the training program.
- Learn to use a variety of OSHA resources available to develop and implement safety and health training, such as the OSHA Training Institute, the Resource Center Loan Program, Susan Harwood Grants Program, OSHA Web site and e-Tools, and the OSHA Outreach Training Program.

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**REGULATORY ISSUES: OSHA**

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literature stating that the OSHA-mandated training requirements are unnecessary or generally unreasonable (Saccaro 1994, 50–51).

From a legal perspective, the adequacy of employee training has become an issue in contested cases where the affirmative defense of unpreventable employee misconduct is pursued. Under case law well-established in the Occupational Safety and Health Review Commission, an employer may successfully defend itself against an otherwise valid citation by demonstrating that all feasible steps were taken to avoid the occurrence of the hazard, and that actions of the employee involved in the violation were a departure from a uniformly and effectively enforced work rule of which the employee had either actual or constructive knowledge. The adequacy of the training and education given to employees in connection with a specific hazard is a factual matter that can be decided only by considering all the facts and circumstances surrounding the alleged violation (OSHA 1998, 2).

Legally mandated training is an important component in a company’s safety training program, but it should not be the foundation of the program. This legally mandated training should be viewed as minimal standards; training to merely avoid citations will not decrease the rate and severity of injuries, nor does it satisfy the spirit of the OSH Act (OSHA 1970). Companies can buy training programs that cover many of the OSHA training requirements. These programs are designed to meet the minimum training requirements established by OSHA. However, the programs do not address the specific company procedures, manufacturing processes, or hazards that are necessary for successful training. There are sure to be major gaps in a safety training program if the goal is merely compliance with government safety regulations, while company-specific safety hazards are left unaddressed (Saccaro 1994, 50–51).

The Role of Training in Accident Prevention

Current estimates identify that 80–90 percent of all accidents are caused in part by unsafe acts (Lawton and Parker 1998). Training, or the lack of training, may play a role in the occurrence of unsafe acts, and therefore play a role in accident prevention. There is very little disagreement in the role that training plays in reducing unsafe acts, but the more pressing problem for many employers is deciding which employees have the greatest need for training.

In OSHA’s publication, Training Requirements in OSHA Standards and Training Guidelines, two methods for prioritizing training needs are discussed (OSHA 1998). The first method is to identify employee populations that are at higher levels of risk. The nature of the work will provide an indication that such groups should receive priority for training on occupational safety and health risks. This risk can be influenced by conditions under which the work is performed, such as noise, heat or cold, or safety or health hazards in the surrounding area.

The second method of identifying employee populations at high levels of risk is to examine the incidence of accidents and injuries. Within the company, workers’ compensation data and/or OSHA record-keeping logs (OSHA Form 300, Log of Work-Related Injuries and Illnesses) and reports (OSHA Form 301, Injury and Illness Incident Report) can be used to justify and define the role of training for targeting preventive follow-up action (OSHA 2004b). A thorough accident investigation can identify not only specific employees who could benefit from training, but also identify companywide training needs.

On a national level, federal as well as professional safety societies can be used to provide injury and illness data. Research from these data sources has identified several variables as being related to a disproportionate share of injuries and illnesses at the work site. These variables should be considered when identifying those with the greatest need for training (OSHA 1998, 7):

- the age of the employee—younger employees have higher incidence rates
- the length of time on the job—new employees have higher incidence rates
- the size of the firm—in general terms, medium-size firms have higher incidence rates than smaller or larger firms
• the type of work performed—incidence and severity rates vary significantly by the Standard Industrial Classification (SIC) Code
• the use of hazardous substances by SIC Code (OSHA 2010f)

Determining the content of training for employees at higher levels of risk is similar to determining what any employee needs to know. A job hazard analysis is a useful tool for determining training content from job requirements. This procedure examines each step of a job, identifies existing or potential hazards, and determines the best way to perform the job in order to reduce or eliminate the hazards (OSHA 1998, 7).

FUTURE OUTLOOK
In 1999, the National Institute for Occupational Safety and Health (NIOSH), the National Institute of Environmental Health Sciences (NIEHS), and OSHA sponsored a national conference to discuss emerging issues in the occupational safety and health field with a focus on training effectiveness. Specifically, this conference focused on the following (NIOSH 2004, 1):

• issues concerning the changing workplace and workforce
• methodologies for training
• evaluation of training
• systems of safety, including training
• policies and resources to meet projected training needs

What follows are some of the major findings from this conference related to training needs and challenges, and training policy and regulations.

Needs and Challenges
Although the reported number of workplace fatalities in the United States has decreased over the past decade, according to the Bureau of Labor Statistics (BLS), the number of reported fatalities is still substantial—4547 fatalities in the United States in 2010 (BLS 2011). Therefore, improving training program quality and the effectiveness of training efforts, together with complying with the relevant OSHA training regulations, are important interventions aimed at workplace hazard prevention and control.

The acknowledged need for training is also being influenced by performance-based training, which is not mandated by law but is based on the need to improve job performance. In addition, workplace and workforce changes that are responding to advances in technology, demographic shifts, and global economic factors all act to complicate the task of training (NIOSH 2004, 2–4).

Examples of workplace changes in the United States include the shift from a manufacturing economy to one that is dominated by services and a reduced management-to-worker ratio. Since occupational hazards in the service sector tend to be more variable, training may have to change to incorporate alternative approaches to ensure learning of safe work practices. As an organization becomes flatter, the workers can be expected to play a greater role in OSH efforts. This implies that these same workers must receive appropriate training and information about hazards, control measures, and preventive actions commensurate with their safety and health program responsibilities (NIOSH 2004, 5–6).

Policy and Regulations
OSHA recognizes training as a critical action to take in further reducing workplace injuries and illnesses in the United States. This is especially true when training is combined with other workplace interventions, such as safety programs and procedures. However, OSHA also has found the effectiveness of OSH training as a sole intervention is less certain and more limited (NIOSH 2004, 11–13).

As a result of the 1999 NIOSH, NIEHS, and OSHA Training Conference, there were three major findings related to policy, regulation, and standards. The first was the need to prioritize training with a focus on directing OSH training at those conditions that represent the highest risk of work-related injury and illness. Three methods for prioritizing training were discussed earlier in this chapter. OSHA has also been gathering empirical evidence on the benefits of training (lives saved, injuries
avoided, and reduced costs to business) through OSHA Consultation Safety and Health Program Evaluations completed at sites requesting consultation services. Data from these program evaluations support the premise that companies demonstrating a strong emphasis on worker training had the most effective occupational safety and health programs (NIOSH 2004, 11–13).

The second major finding was the need to set at least voluntary standards for acceptable OSH training program practices. This also included establishing competencies of those delivering OSH training. It was believed that these standards would help provide a certain level of quality control (NIOSH 2004, 12). OSHA has, in fact, developed Voluntary Training Guidelines, which are discussed later in this chapter.

The third major finding was the need to provide OSH training to all levels of the workforce to promote total staff knowledge of the training goals and to reinforce its objectives. As mentioned earlier, this is also important as organizations become flatter and additional safety and health responsibilities are placed on workers at all levels. To address this issue, OSHA is providing support for direct training and education of workers through grants to various nonprofit organizations, offering courses at OSHA Training Institute Education Centers, and disseminating training products through distance learning technology, CD-ROMs, and the Internet (NIOSH 2004, 12).

OSHA Training Requirements

OSHA Revisions to the Voluntary Protection Programs to Provide Safe and Healthful Working Conditions

Section IV of the Revisions to the Voluntary Protection Programs to Provide Safe and Healthful Working Conditions outlines the requirements of a safety and health management system for all VPP participants. The four basic requirements are in line with the Voluntary Safety and Health Program Management Guidelines originally developed in 1989 (OSHA 1989). A summary of the four elements in the VPP Safety and Health Management System include (OSHA, 2009b):

- management leadership and employee involvement—integrating the OSH program with the overall management system, clearly establishing policies with goals and objectives, responsibility/authority, and accountability for OSH activities, and involving workers in hazard recognition and control activities
- work-site analysis—analyzing the workplace conditions and work practices to identify hazards, policies, and procedures for the purpose of anticipating harmful occurrences (i.e., inspections and job hazard analysis)
- hazard prevention and control—eliminating or controlling hazards via engineering, administrative, work practices, or PPE
- safety and health training—addressing the responsibilities of all personnel at all levels of the organization

According to these guidelines, training is necessary to reinforce and complement management’s commitment to prevent exposure to hazards. The guidelines do not suggest that elaborate or formal training programs solely related to safety and health are always needed. In fact, integrating safety and health protection into all organizational activities is the key to its effectiveness. Safety and health information and instruction is often most effective when incorporated into other training about performance requirements and job practices, such as management training on performance evaluation, problem solving, and employee training on the operation of a particular machine or the conduct of a specific task (OSHA 2009b).

A fundamental premise of the safety and health training included as part of the VPP Safety and Health Management System is that all employees must understand their safety and health responsibilities, the hazards to which they may be exposed, and how to prevent harm to themselves and others from such exposures. Without such an understanding, employees will not be able to perform their responsibilities for safety and health effectively. For this to happen, the training must ensure the following (OSHA 2009b):

- Managers and supervisors understand their safety and health responsibilities and are able to carry them out effectively. These responsibilities may include identifying unrecognized