1. A combination of methods is normally used to evaluate workers’ exposures to hazards. Evaluation methods include (but are not limited to) the following:
   
   a. Talking with workers about the materials, work activities, and processes in their areas.
   
   b. Walking through the workplace and observing materials, work activities, and processes.
   
   c. Formal analysis of work operations, chemical inventories, safety data sheets, and plans/proposals for new facilities and operations.
   
   d. Consulting published reviews of hazards, such as the following:
      
      i. NIOSH industry- and occupation-specific information: 
         http://www.cdc.gov/niosh/topics/industries.html
      
      ii. OSHA industry- and occupation-specific resources: 
         https://www.osha.gov/dcsp/compliance_assistance/industry.html
      
      
      iv. BLS Monthly Labor Review
         http://www.bls.gov/opub/mlr/subject/a.htm
      
      e. Monitoring and sampling (e.g., air sampling, source sampling, biological monitoring, and medical surveillance).

2. Basic Definitions:
   
   a. *Toxicity* is the capacity of a substance to harm an organism.
   
   b. *Exposure level/dose* is the amount of a substance a worker absorbs through all routes during work.
   
   c. *Personal monitoring* is the measurement of one worker’s exposure to a hazard, for instance, by measuring the concentration of an airborne contaminant near a particular worker’s breathing zone. This is usually done by attaching a portable air monitoring device to a worker’s lapel.
   
   d. *Area monitoring* is the measurement of a hazard in a particular work area. This is usually done by setting up a stationary air monitoring device in the breathing zone of a room where employees are working.
   
   e. *Biological monitoring* is the analysis of a worker’s blood, urine, exhaled air, etc. to identify absorbed contaminants, their metabolites, or their physiological effects.
f. *Medical surveillance* includes screening of workers to keep track of changes in health. Examples include audiometry (annual hearing tests), pulmonary function exams (annual respirator physicals), etc.

3. Exposure Standards for Workers:
   a. The Occupational Safety and Health Administration (OSHA) has established *Permissible Exposure Limits (PELs)*, which are the legal limits of personal exposure permitted in workplaces for particular amounts of time during a single workday. Unfortunately, many PELs are based on outdated research and do not adequately protect workers from hazards.
   
b. The National Institute for Occupational Safety and Health (NIOSH) has established *Recommended Exposure Limits (RELs)*, which are recommendations based on modern research about the health hazards of chemicals. Although most RELs do not carry the force of law, it is important to observe these limits to protect the health of workers.
   
c. The *American Conference of Governmental Industrial Hygienists (ACGIH)* is not a government agency. The ACGIH has established *threshold limit values (TLVs)*, which are nonbinding recommendations. TLVs are important for protecting worker health—especially for substances that do not have NIOSH RELs.
   
   i. The *ACGIH TLV* is an air concentration of a contaminant that most healthy people can tolerate as an average exposure for 40 hours a week over a working lifetime without having any adverse health effects.