Hazard Recognition and Assessment

WHAT ARE HAZARDS?

A hazard is a practice, behavior, condition or situation, or a combination of these, that can cause injury or illness in people, or damage to property. Uncontrolled hazards may cause problems that range from minor nuisances to very serious consequences and even death.

Owners and managers must pay attention to hazards because they can seriously harm workers. Recognizing, assessing and controlling hazards is an integral part of an effective safety program. Hazards can be divided into two types: **Health** and **Safety**.

Health Hazards

- Chemical: includes any form of chemical such as compressed gases, solvents, lead and others.
- Physical: includes noise, vibration, heat, cold and radiation
- Ergonomic: includes design of the workplace and jobs that involve repetition, force and posture.
- Biological: includes organisms or toxic substances produced by living things that can cause illnesses or disease in humans (e.g., bacteria, viruses, fungi, parasites and insects).

Safety Hazards

- Machine: includes hazards from moving parts like rotating shafts, belts, pulleys, blades and saws.
- Energy: includes pneumatic or hydraulic pressure, steam, heat and electricity.
- Material Handling: includes manual and mechanical handling (e.g., lifting, lift trucks, conveyors)
- Work Practices: includes failure to have or follow safe work practices.

WHAT ARE THE CONTRIBUTING FACTORS THAT CAUSE HAZARDS?

The following factors contribute to creating hazards

People: The actions people take, or do not take, can create hazards in the workplace. Knowledge of and training in appropriate procedures is critical to avoid unsafe behaviors. Appropriate administration, leadership and supervision help ensure procedures and safe practices are followed.

Equipment: The tools and machines people use and work near can be hazardous. Look for unsafe or unhealthy conditions.

- inadequate guarding or barriers
- □ defective tools and equipment
- □ incorrect tools and equipment for the job

- inadequate warning systems

Materials: The improper handling or wrong type of raw materials, products, and hazardous chemicals can result in explosions, fires and exposure to toxic chemicals and physical agents (e.g., heat).

Environment: Some hazards are created by the work environment. Look for:
- condition of all surfaces where people walk or where things are placed
- overcrowding and poor ventilation
- poor lighting, extreme temperatures and noise
- poor housekeeping.

Process: The combination of the other four factors in production is process. It involves the flow of work and includes design, organization, pace and type of work. By-products such as heat, noise, dust, vapors, fumes and scrap materials may be created by the process.

WHAT IS "RAC"?
"RAC" stands for recognizing, assessing and controlling hazards.

Recognizing hazards: Hazards may be brought to your attention by:
1. personal observation and concern, or
2. identification by a knowledgeable and skilled individual.

There are 5 tools for or ways of recognizing hazards. Once recognized, hazards must be brought to the attention of people who can act on them.

Assessing hazards: Assessment is the process of comparing what you suspect is a hazard against standards and expectations. Where the law sets out a standard, it must be followed (e.g., the *ANSI, OSHA, etc*). Other standards should be considered including policies and procedures, safety manual/handbook and manufacturers' recommendations.

Controlling hazards: Controls are used to maintain standards and expectations. They act to minimize, substitute or eliminate workers' exposure to the hazard's harmful effects.

Recognizing Hazards
-Observations and Worker Concerns
-Inspections
-Investigations
-Examining Records
-Task and Process Analysis.

Assessing Hazards
Collect data using methods from prior "Recognizing Hazards" steps and compare findings to:

- Acts and regulations
- Standards
- Guidelines
- Manufacturers' recommendations
- Workplace standards as outlined in the safety manual/handbook.

Control Activities
- Prevention;
- Immediate Response
- Return to Work.

WHAT ARE THE 5 TOOLS TO RECOGNIZE HAZARDS?

1. Observation and Worker Concerns

The most common method of recognizing hazards is by observation and through worker concern. Individuals in the workplace may notice hazards or have concerns about potential hazards at any time. They should report these to a supervisor or manager.

You should encourage reporting of suspected hazards by all employees. In fact, if workers know there is a hazard, they are obligated to report it to the supervisor/manager. A casual remark by a visitor or a new employee having the advantage of "fresh eyes" can also identify previously unnoticed hazards. The existence of hazards may indicate inadequate, substandard or deteriorated controls, practices or working conditions.

Workers often see problems or raise concerns when they believe something in the workplace is hazardous. They may have pain or discomfort, notice unusual odors or strain to complete certain tasks. Supervisors are required to be competent and to take every reasonable precaution to protect the worker. Therefore, supervisors should investigate worker concerns to determine if there is a hazard or if controls could be improved.

2. Inspections

The workplace inspection is a regular and common method of recognizing hazards. Workplace inspections identify hazards that could endanger the health or safety of anyone in your workplace. In general, inspections of the workplace are intended to:

- identify and record potential and actual hazards
- identify any hazards that require immediate attention
- ensure that existing health and safety standards and procedures are met
- ensure that existing controls are working
- collect information to make recommendations for corrective actions

Types of inspections include:

- **Regular Planned Inspections:** done on a regular basis by the designated staff member or safety liaison.
- **Spot Inspections:** usually conducted by managers or supervisors as part of their safety responsibilities
- **Maintenance Inspections:** usually the responsibility of supervisors as part of their regular duties and daily operations
- **Pre-operation checks of equipment:** completed before starting a work activity that uses potentially hazardous equipment.

To complete an effective inspection, the inspector needs to understand work procedures, know the standards and laws that apply, be aware of potential hazards created by the contributing factors (people, equipment, materials, environment and process), and note any previous injuries, illnesses and problem areas.

Five Steps to Effective Inspections

1. Establish inspection procedures
2. Prepare for the inspection
3. Conduct the inspection
4. Report the findings and make recommendations
5. Follow-up

3. Investigations

Using information collected from an investigation is an important method of recognizing hazards. Investigations are conducted to gather information on the root causes of an incident or situation that may have caused an illness, injury, or damage to property.

Investigations help:

- identify the immediate and root causes of the incident, injury or illness
- analyze the information gathered to determine ways to prevent future incidents, injuries and illnesses
- improve or update policies, procedures and training programs

It is good practice to investigate any injury, illness or incident (near miss) to help prevent more serious events the next time. Completing effective investigations can also have a positive effect on the organization's bottom line by improving worker–employer relations. Interviews are an important part of the investigation process.

Four Steps to Effective Investigations

1. Secure and manage the scene
2. Notify the appropriate people
3. Investigate
4. Report

4. Examining Records
Examining records is a good method to assist in recognizing patterns and frequencies of injuries or illnesses. By looking for trends, you will be able to decide where to focus prevention efforts. The type of workplace records that may be examined include:

- First aid reports
- Worker's comp. /liability claims
- Incident reports
- Inspection reports
- Investigation reports
- Material Safety Data Sheets (MSDSs)

The information gained from examining records can be used to:

- identify injuries and illnesses and trends
- measure the effectiveness of your health and safety program
- raise awareness of health and safety
- help to make recommendations and priorities
- support decisions affecting health and safety.

5. Task or Process Analysis
Task and process analysis is an excellent method of recognizing potential hazards. Task or process analysis involves breaking a job or process down into individual steps and carefully

looking for hazards at each one by examining it and its relationship to the other steps. Task and process analysis should involve the people doing the jobs because they can provide valuable information about how jobs are done and where problems exist.

Task analysis looks at the individual tasks of a single job. Process analysis looks at the sequence of jobs or the relationship between jobs that make up the complete process of providing the service or making the product from beginning to end. The impact and involvement of the

contributing factors (i.e., people, equipment, materials, environment, and process) at each step is included in the analysis.

Three Steps to Task and Process Analysis
1. Identify tasks, steps and/or the relationship between these
2. Identify the contributing factors at each step
3. Identify the hazards associated with each task and contributing factor combination.

HOW IS HAZARD RECOGNITION MANAGED?
There are five steps for making sure hazards are recognized in your workplace:

1. Set Standards
Develop standards and procedures for:

- responding to observations and worker concerns

- inspections
- investigations (that will allow you to find the root causes of injuries and illnesses and solutions to hazards)
- examining records (what records should be kept, what information should be tracked)
- task and process analysis (documentation of methods and best work practices).

2. Communicate

- make sure workers know the standards and know how and why to report hazards
- make sure results of inspections and investigations are communicated to the appropriate persons.

3. Train

Make sure the appropriate people are trained to:

- identify hazards
- report and respond to all observations and worker concerns
- do inspections
- do investigations
- examine records
- do task and process analysis (review how the work is done).

4. Evaluate

- review procedures to see if hazards are being recognized and action taken

5. Acknowledge Success and Make Improvements

- acknowledge those who reported hazards and contributed to the recognition of hazards
- revise procedures as needed.

EXERCISE 1: ASSESSING HAZARDS

For this scenario:
1. Describe the types of recognition methods that are used or could be used to bring the hazard(s) to the employer's attention. Describe the type of hazard.
2. Describe the potential consequences from the hazard (think about injury, illness and/or property damage) if nothing were done.

Scenario 1:
Joseph is a surveyor and divides his time between job sites and his office. While surveying a parcel of land for a possible capital improvement project, he came close to being hit by an oncoming vehicle. He was startled enough that he lost his footing and sprained his ankle. Joseph is new to the city and has not received all of his certifications.

Recognition
1. What are the hazards and potential consequences of the hazards?

Assessment
2. What information collection tools and methods could be used to assess the potential hazards?
3. What questions could be asked? (e.g., about people, equipment, materials, environment, process)
4. What are the steps to assessing the answers?

EXERCISE 2: SOMETHING IS WRONG

For this scenario:
1. Describe the types of recognition methods that are used or could be used to bring the hazard(s) to the employer's attention. Describe the type of hazard.
2. Describe the potential consequences from the hazard (think about injury, illness and/or property damage) if nothing were done.

Scenario No. 1
Jamal is a forklift operator. He came close to having a serious accident when he was unloading a truck. As he drove off of the truck, the weight of the forklift pushed the truck away from the dock and he came close to falling in the gap that was created between the truck and the dock. Because he was not wearing his seatbelt, the forklift jogged him and he banged his head against the side. He was certified when he first began to work for the city but has not received any training after that.

Recognition
2. What are the hazards and potential consequences of the hazards?

Assessment
2. What information collection tools and methods could be used to assess the potential hazards?
3. What questions could be asked? (e.g., about people, equipment, materials, environment, process)
4. What are the steps to assessing the answers?