Hazard Recognition and Identification

Safety Meeting
Hazard

- A hazard is any source of potential damage, harm or adverse effects on something or someone under certain conditions.
Hazard

• Examples of hazards include
  – Tools
  – Equipment
  – Machinery
  – Materials
  – Environment
  – People/actions
  – System flaws
Hazard

• A hazard only describes the initial conditions for accidents in the jobsite

• It takes hazards and exposure before an accident can occur
Exposure

• Exposure is when you are at risk from a hazard.

• Three forms of exposure
  – Physical exposure
  – Environmental exposure
  – Potential exposure
Exposure

- Physical exposure
  - Your proximity to a danger zone
- Environmental exposure
  - Regardless of distance from the source
- Potential exposure
  - The possibility that you could be exposed
Sources of Hazards

- Gravity
- Motion
- Mechanical
- Electrical
- Biological
- Pressure
- Temperature
- Chemical
- Radiation
- Sound
Gravity

• Gravity is the force of attraction by which universal bodies fall toward the center of the earth.
  – Throwing a ball up in the air
  – Jumping rope
  – Tripping or falling
Motion

Motion is the action or process of moving or changing place or position; movement.
- Car moving on a road
- Flowing water
- Lifting or bending
Mechanical

- Mechanical energy is the energy of an object due to its motion or position.
  - Conveyer belt
  - Grinder
  - Ferris wheel
  - Drill
Electrical

- Electrical energy is the presence and flow of an electric charge.
  - Transformers
  - Static electricity
  - Wiring
  - Lightning
Biological

• Biological energy is the energy transactions in living organisms.
  – Bacteria
  – Viruses
  – Animals
  – Contamination
Pressure

- Pressure is the continuous physical force exerted on or against an object by something in contact with it.
  - Compressed cylinders
  - Hoses
  - Hydraulic equipment
Temperature

• Temperature is the degree of heat or cold of a body, substance or medium.
  – Fire
  – Nitrogen
  – Steam
  – Sun
• Chemical energy is when a substance undergoes a change through a chemical reaction.
  – Burning coal
  – Car running off gas
  – Natural gas as heat source
  – Corrosives
Radiation

- Radiation is the particles or electromagnetic waves (energy) emitted by the atoms of radioactive sources and naturally occurring radioactive materials (NORM).
  - Welding arcs
  - Microwaves
  - X-rays
Sound

- Sound is physical waves travelling through a medium (air or water) that cause a vibration to impact your eardrum.
  - High pressure release
  - Jack hammer
  - Whisper
Risk

• A risk is the chance or probability that you will be harmed or injured if exposed to a hazard.

• Factors that influence the degree of risk
  – How much a worker is exposed to a hazardous condition
  – How the worker is exposed
  – How severe are the effects under the conditions of exposure
Risk

• Involved in all work related operations
• Requires decisions that include risk assessment and management
• Identify risk through knowledge, experience, and job requirements
Risk Management

• Risk management is a proactive means to eliminate or lessen the threat of hazards.

• You manage risk whenever you modify the way you do something to minimize your chances of injury or loss as small as possible.
Risk Management

- Reduce or eliminate hazards anytime there are changes to work activities.
- Applies to routine changes, such as scheduled maintenance and planned modifications, and non-routine changes.
- The purpose of specialized procedures is to comply with regulations, communicate work activities, and aid the prevention of accidents and releases.
Identifying Hazards

• Hazard identification is the systematic observation of unsafe conditions, negative behaviors and weaknesses within the management structure that could lead to injuries and illnesses in the jobsite.
Analyzing Hazards

• Determine the nature of the hazard

• Processes may include
  – Safety inspections and audits
  – Observations
  – Pre-job reviews
  – Incident and accident analyses
Safety Inspections and Audits

• Examines conditions in the workplace
• Identifies hazards
• Evaluates the quality of program design and performance
• Ensures continuous improvement in
  – Training
  – Resources
  – Enforcement
  – Supervision
  – Leadership
Observations

- **Informal**
  - Spot unsafe or inappropriate behaviors and hazardous conditions while conducting daily tasks

- **Formal**
  - Policies, procedures and events used as tools for gathering and analyzing data to improve overall safety
Pre-job Review

- Examines hazards associated with a specific job
- Separate the job into basic steps
- Analyze each step to identify potential and actual hazards
- Develop safe job procedures
- Known as
  - Job safety analysis (JSA)
  - Job hazard analysis (JHA)
  - Job safety environmental analysis (JSEA)
JSA

• A process of systematically identifying hazards by breaking down a particular job into a series of relatively simple steps.

• To eliminate hazards and risks before accidents occur
JSA

• Analyze job specific hazards
• Prevent workplace injuries and illnesses
• Improve job planning
• Establish proper procedures
• Recognize potential hazards
• Assure good communication
• Commit to safety and health
Safety Meetings
Hazard Recognition and Identification

Student Name: 

Quiz Date: 

Student Instructions: Sign and date this quiz sheet. Circle the letter representing the correct answer to each quiz question below.

1. A hazard is any source of potential damage, harm, or adverse effects on something or someone under certain conditions.
   A) True  B) False

2. Which of the following is not an example of a hazard?
   A) Tools  
   B) Machinery  
   C) Environment  
   D) PPE

3. Three forms of exposure include physical, environmental, and potential.
   A) True  B) False

4. Which of the following is not an example of motion?
   A) Car moving on the road  
   B) Flowing water  
   C) Lightning  
   D) Lifting or bending

5. Pressure is the degree of heat or cold of a body, substance, or medium.
   A) True  B) False

6. Chemical energy is when a substance undergoes a change through a chemical reaction.
   A) True  B) False

7. Which of the following is an example of sound?
   A) High pressure release  
   B) Jack hammer  
   C) Whisper  
   D) All of the above

8. A risk is the chance or probability that a worker will not be harmed or injured if exposed to a hazard.
   A) True  B) False

9. ____________ is a proactive means to eliminate or lessen the threat of hazards.
   A) Zero tolerance policy  
   B) Risk management  
   C) Micro management  
   D) A chemical release

10. Processes to analyze hazards include:
    A) Safety inspections and audits  
    B) Observations  
    C) Pre-job reviews  
    D) All of the above
Quiz-Answer Key

Below is the answer key for the above quiz. Do not print this page when printing the quiz for the students.

1. A
2. D
3. A
4. C
5. B
6. A
7. D
8. B
9. B
10. D
### Sign-In Sheet for Safe Operations Meeting

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**Means to Verify Understanding:**  
- Quiz  
- Q & A - Group Discussion  
- Hands On Demo

**Safety Topic(s) Covered:** **Hazard Recognition & Identification**

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