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 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

• 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
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