Disclaimer

• This training material presents very important information.

• Your organization must do an evaluation of all exposures, applicable codes and regulations, and establish proper controls, training, and protective measures to effectively control exposures and assure compliance.

• This program is neither a determination that the conditions and practices of your organization are safe nor a warranty that reliance upon this program will prevent accidents and losses or satisfy local, state or federal regulations.

• All procedures and training, whether required by law or not, should be implemented and reviewed by safety and risk management professionals, and legal counsel to ensure that all local, state and federal requirements are satisfied.
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Why Take Accident Investigation and Analysis Training?

Why investigate accidents?

• Unless the causes of an accident are known, solutions cannot be put into place.

• Investigations uncover the root causes of accidents.

• Investigations discover solutions that will stop similar accidents from reoccurring.

• Investigations help protect people, products, processes and property.
Why Take Accident Investigation and Analysis Training?

**Purpose of an analysis:**
The purpose is not to place blame but to help determine the *root causes* of the incident, to correct source issues and prevent reoccurrence.

- **Approaches:**
  - Investigation
  - Observation
  - Incident re-creation
  - Witness interviews

- **Value adds:**
  - Identify safe and unsafe conditions.
  - Identify safe and unsafe behaviors.
  - Identify needed organizational changes.
  - Provide positive and negative feedback.
  - Reinforce best practices.
Most accidents result from multiple causes:

- **Unsafe acts**: An example is texting while driving. Determine what activities contributed to the accident, both in management and front line staff.

- **Unsafe conditions**: Examples include an unguarded machine or liquids on the floor. Determine what material, environmental or equipment conditions contributed to the accident.

- **Organizational causes**: What programs or processes (or lack thereof) contributed to the accident?
Unsafe acts:

Capture *unsafe acts* that may have contributed to the accident, such as:

- Unauthorized equipment operation.
- Horseplay, joking, teasing, etc.
- Not following the procedures.
- Bypassing safety devices.
- Not using protective equipment.
- Being under the influence of drugs or alcohol.
- Taking short-cuts.
Basic Accident Causes

Unsafe conditions:

Capture *unsafe conditions* that may have contributed to the accident, such as:

- Ergonomic hazards, i.e., repeated bending, leaning, or deviated postures in wrists and hands, arm and shoulder positions, lifting.
- Environmental hazards, i.e., chemical, noise, heat or other exposures.
- Improper storage or housekeeping, i.e., material storage, cluttered walkways, debris or liquids on floors.
- Improper or damaged personal protective equipment such as gloves, face and eye protection.
- Inadequate machine guarding.
- Uneven or slick walking surfaces.

*Unsafe conditions are often a result of unsafe acts.*
Organizational causes:

Capture organizational causes that may have contributed to the accident, such as:

- Inadequate employee training.
- Inadequate supervision of employees.
- Poor hiring procedures.
- Inadequate safety programs or procedures.
- Lack of preventative maintenance.
- Inadequate communication in the organization.
- Lack of resources or equipment.
Four-step investigation process:

To ensure that nothing is missed and that the best results are obtained, you must:

1. Control the scene.
2. Gather all data.
3. Analyze all data.
4. Document the results and the recommendations for corrective action.
Control the scene:

- **First aid:**
  - Provide medical care to the injured.

- **Control existing hazards:**
  - Conduct an on-scene evaluation.
  - Prevent further injuries.
  - Contain the situation.
  - Get more help if needed.

- Preserve all evidence.
The Investigation Process

Gather the data:

Gathering data is the most important part of the investigation. Everything is based on what is discovered.

- Photograph details of the scene.
- Interview all witnesses.
- Take measurements and make sketches.
- Get all the facts, including the following:
  - The people involved
  - Date, time, location
  - Activities at time of accident
  - Existing safety processes
  - Equipment involved
  - List of witnesses
Gather the data (continued):

*Interview the witnesses:*

- Conduct interviews in private.
- Conduct interviews near the scene.
- Plan your questions ahead of time.
- Allow the witnesses to tell their entire story in a comfortable manner, and ask follow up questions.
- Ask who, what, when, why, where and how questions.
- Gather objective facts while making no judgments.
- Keep an open mind.
- Do not offer your own opinion.
Gather the data (continued):

Types of questions:

• What is the established procedure for the activities occurring at the time of the accident?

• What, if anything, was different at the time of the accident?

• What was being done immediately prior to the accident?

• What type of training did the people involved in the accident have?

• What might have caused the accident?

• What might have prevented the accident?
The Investigation Process

Analyze the data:

- Gather photographs, sketches, interview materials and other information from the scene.

- Identify the primary and contributory causes of the accident, such as:
  - The employee bypassed a guard and placed a hand in the machine.
  - A lack of safety training.
  - Improper preventative maintenance.
  - Poor hiring practices.
  - Reaching below the waist to lift 80 pounds.
  - Improper personal protective equipment (PPE).
  - Insufficient job requirements.
  - Inadequate warning labels.

- Interpret results to get a clear picture of what happened.
What controls failed?

Identify the specific controls that failed and how those failures contributed to the accident.

Consider the following:

- Engineering controls
- Administrative controls
- Training controls

What steps specified in the Job Hazard Analysis (JHA) were not followed?
Engineering controls:

- These controls were developed to ‘engineer-out’ the hazard. Examples include machine guarding, safety controls and lock out/tag out, etc.

- When engineering controls are feasible, they can often be the most effective control approach.
Administrative controls:

- Monitoring for safe practices and environments
- Periodic inspections and recordkeeping
- Labels and signs
- Procedures

Training controls:

- New hire safety orientation
- Job specific safety training
- Periodic refresher training and review
Objective:

- Seek to identify the root causes of the accident and which actions are necessary to eliminate the causes.

- Seek to identify contributory factors.

- If only the obvious causes are identified and eliminated, there is a high probability that the problem will return.
Common misconceptions:

- Every accident has only one true cause and one right solution.
- Only breaking rules causes accidents.
- Someone needs to be blamed.
- Given the same set of facts, everyone will come to the same conclusion.
Analysis guidelines:

• Determine internal procedures for investigating serious accidents and near misses.

• Obtain design information, diagrams, Safety Data Sheets, operation and maintenance procedures and other necessary information.

• Include individuals from different departments: safety, engineering, operations, maintenance, industrial hygiene, etc.

• Resolve concerns among staff and allow people to freely voice their observations and opinions.
Analysis guidelines (continued):

• Discuss all aspects of the accident, including the processes, product, etc.
• Be open-minded to creative ideas.
• Try to put yourself in the other person’s shoes. Why did the injured person respond that way?
• Avoid blaming someone.
• Implement corrective actions immediately.
• Follow-up to determine the effectiveness of the new controls.
Analysis benefits an organization by:

- Preventing accidents, injuries, and incidents.
- Reducing direct and indirect accident costs.
- Improving efficiency, productivity, profitability, and morale.
- Enhancing product quality and public image.
- Providing continuous improvement.
- Improving workplace morale.
Corrective Actions

Following through:

• Identify what corrections are needed.
• Specify who is responsible to carry out each correction.
• Agree to a reasonable date for completion.
• Enact the corrective procedures.
• Update the Job Hazard Analysis.
• Be sure additional training occurs for all affected employees.
• Follow-up to evaluate the effectiveness of the changes.
Summary

- Careful and comprehensive investigations are essential to determine the causes of the accident and to implement corrective actions that prevent the accident from reoccurring.

- Most accidents result from multiple causes.

- The Investigation Process is comprised of the following steps: control the scene, gather data, analyze data and document the results and recommendations for corrective action.

- Identify specific controls that failed and how those failures may have contributed to the accident: engineering controls, administrative controls, and training controls.

- Analyze the root causes and immediately implement control changes based on that evaluation. Determine if there is a need to create new program, policy, training, job safety procedures, etc.