Accident Investigation

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Objectives

- What is an incident? What is an accident?
- Why should you investigate both?
- How should you investigate?
- What results are you looking for?
What is an Incident

Unplanned and unwanted event which disrupts the work process and has the potential of resulting in injury, harm, or damage to persons or property.

- disrupts the work process
- does not result in injury or damage
- should be looked as a “wake up call”
What is an **Accident**?

Unplanned, unwanted, but controllable event which disrupts the work process and causes injury to people.

- is unplanned and unwanted
- Is controllable
- stops the normal course of events
- Causes property damage & bodily harm
What is an accident?

- **Success**: Expected event leads to wanted consequence.
- **Miss**: Unexpected event leads to unwanted consequence.
- **Fortune**: Unexpected event leads to wanted consequence.
- **Accident**: Unexpected event leads to unwanted consequence.
Anatomy of an Accident

- Normal condition
- Unexpected event
- Abnormal condition
- Failure of control
- Loss of control
- Lack of defence
- Accident
Accident Pyramid

- 1: Serious or disabling
- 10: Minor injuries
- 30: Property damage accidents
- 600: Incidents with no visible injury or damage
The Iceberg Model of Accidents

- Increasing visibility of events
- Improving frequency of events
- Accidents
  - Incidents
  - Near-misses
  - Unsafe acts
Accidents

- An accident is not “just one of those things”.
- Accidents are predictable and preventable events.
- They don’t have to happen.

How Can You Prevent Accidents from Re-Occurring?

Utilize a systematic plan and follow through of investigating incidents or mishaps and altering behaviors to help stop a future accident from occurring.
Why Investigate?

- Prevent future incidents (leading to accidents).
- Identify and eliminate hazards.
- Expose deficiencies in process and/or equipment.
- Save costs.
- Maintain worker morale.
- The rule requires you to investigate serious accidents.
- Investigate all incidents and accidents immediately.
Purpose of the Investigation

- Identify the causes
- Identify, eliminate, reduce the hazards
- Recommend corrective actions
Accident Analysis & Prevention

Accident analysis is the reconstruction of the events and causes of the past that lead to the accident.

Accident prevention is the investigation of the ways that can control the occurrence and development of accidents.
Investigation Conduct

- An investigation answers the following questions:
  - Who was present?
  - What activities were occurring?
  - What happened?
  - Where and what time?
  - Why did it happen?

- Results of an investigation allow you to:
  - Determine a root cause
  - Determine indirect causes and contributing factors
Investigation Conduct

- Gathering and reviewing the evidence
  - Work area layout
  - Environmental conditions
  - Job tools
  - Procedure violations
  - Training status
  - Supervisory oversight
  - Management support

- Verify your facts
Types of Evidence

- Pictures – sketch, photographs
- Physical – debris, parts, tools, cords
- Paper – procedures, training records
- People – statements, interviews
Cause Identification

- Change Analysis
  - Accident vs accident-free sequences
  - What changed
- Job Safety Analysis
- Barrier Analysis
  - Barriers to hazards
- Tree Analysis
  - Fault
  - Analytic – why or why not
  - Management Oversight & Risk Tree (MORT)
Cause & Effect

If we know what the cause is ...

Cause

Forward

Effect

then we can look for the effect!

then we can find out what the cause is!

Cause

Backward

Effect

If we can see what the effect is ...
Types of Accident Causes

- **Causes** – events that lead to injury, property damage, or illness
  - **Root Cause** – the cause if corrected would have prevented the accident — sometimes referred to as the “Basic Cause” — poor management policies & decisions; personal factors; physical facility design
  - **Direct Cause** – energy or hazardous material released at the time of the accident
  - **Indirect Cause** – unsafe acts, unsafe conditions
Accident Causes

- Site conditions
- Equipment
- Materials
- Layout
- Inspection
- Maintenance
- Procedures

- Changes
- Communication
- Training
- Employees
- Management
Every accident should have at least one causal factor
- Develop at least one corrective action for each causal factor
- Communicate corrective actions clearly
  - Who
  - What
  - When
- Make causal factors and corrective actions specific so that worker, supervisor, and/or manager knows exactly how to fix it
Follow-up

- Track corrective actions to closure

- Ensure corrective actions have been
  - Initiated
  - Appropriate
  - Effective