



Accident Investigation

Goal

The goal of this training program is to introduce basic accident investigation principles and to describe accident analysis techniques.

Objectives

The employee will demonstrate knowledge of accident investigation principles and techniques.

Background

Seven fundamental activities comprise an accident prevention program:

1. Management support.
2. Comprehensive record keeping.
3. Analysis of the physical plant, operations, and practices to improve safety.
4. Education, training, and discipline to minimize human factors that contribute to accidents.
5. Periodic safety inspections to detect and correct hazards.
6. Accident reporting and comprehensive investigation of every accident and incident.
7. Periodic review of the program to keep it up to date.

Accident – An accident occurs when a person or object receives an amount of energy or hazardous material that cannot be absorbed safely.

Direct Cause - The energy or hazardous material received by the person or object is the direct cause of the accident.

Indirect Cause - The direct cause is usually the result of one or more unsafe acts, unsafe conditions, or both, which are the indirect cause(s).

Basic Cause - A good accident investigation program is designed to discover the basic cause(s) of the accident/incident, meaning the action or condition that resulted in an undesired event.

Incidents - An incident is a near miss, an undesired event that could have resulted in injury to an employee or property damage. These should also be investigated.

Purpose

Accident investigation is a device for preventing future accidents. An investigation must be fact finding and *not* fault finding.

Eliminating one or more causes can prevent most accidents. Accident investigations determine not only *what* happened, but also *how* and *why*.

Three principle purposes of accident investigations are:

1. To learn the cause of the accident so that similar accidents can be prevented.
2. To determine if any deviation resulted in the accident.
3. To educate the employees and supervisors about a hazard and to direct attention to accident prevention within the workplace.

Conduct separate investigations to determine legal liability, compensability, or fraud; the nature of investigations into these types of matters can interfere with the main purpose of accident prevention.

Investigations

The person responsible for investigations should create an accident investigation kit that is held in readiness until it is needed. Some items that are needed in the kit are:

- Camera
- Tape recorder and sufficient tapes
- Notebook
- Tape measure
- Graph paper sketchpad
- High visibility tape

An accident investigation form should be developed and used for each investigation.



Investigation Procedure

1. Make sure the area is secured and free of hazards until the investigation can begin. This preserves physical evidence.
2. Define the scope of the investigation, including when the incident began and ended.
3. Present a preliminary briefing to the investigating team. Include in this briefing:
 - a. A description of the accident with damage estimates. (The principle source of information for analysis is the supervisor's accident report.)
 - b. A description of normal operating procedures.
 - c. Maps or floor plans showing the accident site.
 - d. A list of witnesses.
 - e. An account of events preceding the accident.
4. Visit the accident site to collect physical evidence, take photos, and prepare sketches. Label everything accurately.
5. Interview each victim and witness privately and separately.
6. Determine:
 - a. What was not normal before the accident.
 - b. Where the abnormality occurred.
 - c. When it was first noted.
 - d. How it occurred.
 - e. Qualifications of those involved.
7. Analyze the data collected in step 6. Repeat any steps if necessary.
8. Determine:
 - a. Why the accident occurred.
 - b. A likely sequence of events and probable causes, direct and indirect.
 - c. Alternative sequences of events.
9. Determine the most likely sequences of events and the most probable causes.
10. Conduct a post-investigation briefing with management.
11. Prepare a summary report, including recommended actions to prevent a recurrence.

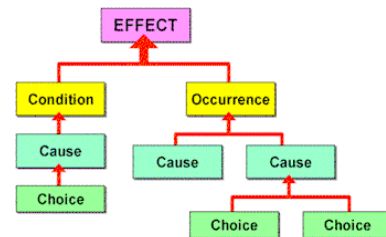


Key Facts

When investigating, some key facts to look for are:

1. The type of injury incurred.
2. The part(s) of the body directly affected by the injury.
3. The source of the injury - the object, substance, exposure, or bodily motion that directly produced or inflicted the injury.
4. The accident type - the event that directly resulted in the injury.
5. The hazardous physical condition or circumstance that allowed the accident to occur.
6. The source of the accident - the object, substance, or part of the premises in which the hazardous condition existed.
7. The hazardous object - the specific object/activity that was hazardous.
8. Unsafe acts - the violation of an accepted safe procedure that directly resulted in the accident.

Remember to investigate contributing factors and search out the root cause.



Investigation Techniques

Fault Tree Analysis (FTA) is a logic diagram showing all the potential causes of an accident or other undesired event. FTA involves these steps:

1. Define the undesired event to study.
2. Obtain an understanding of the system.
3. Construct the fault tree.
4. Evaluate the fault tree.
5. Control the hazards identified.

This information determines the most probable sequence of events leading to the accident.

Another investigation technique would be a Job Safety Analysis (JSA). A JSA is based on the following steps:

1. Select the job to be analyzed.
2. Separate the job into its basic steps.
3. Identify the hazards associated with each step.
4. Control each hazard.

Investigation Report

No investigation is complete until the report is made to management. The following format is a useful example of how to construct a report.

1. Background Information
 - a. When and where the accident occurred.
 - b. Who and what were involved.
 - c. Operating personnel and witnesses.
2. Account of the Accident
 - a. The sequence of events
 - b. The extent of the damage.
 - c. The accident type (fall, caught, struck, etc.)
 - d. Source of energy or hazardous material.
3. Analysis of the Accident
 - a. Direct causes (energy sources, hazardous materials)
 - b. Indirect causes (inadequate training, unsafe acts and conditions)
 - c. Basic causes (management policies, personal or environmental factors, etc.)
4. Recommendations to Prevent a Recurrence
 - a. Direct causes
 - b. Indirect causes
 - c. Basic causes

A successful accident investigation determines not only what happened, but also how and why the accident occurred. Comprehensive documentation and record keeping of all incidents and accidents can be a valuable tool in the investigation and accident prevention process. The ultimate goal of an investigation is to prevent a similar, or perhaps more disastrous, sequence of events from occurring in the future.

Review

1. An incident is an undesired event that could have resulted in injury to an employee or damage to property.
True / False
2. What is the principle purpose of an accident investigation?
 - a. To discover who was at fault
 - b. To punish the person who caused it
 - c. To prevent a recurrence of the accident
3. The first step in an investigation is to eliminate any hazards and secure the accident area.
True / False
4. A successful investigation determines:
 - a. Exactly what happened and when it happened
 - b. Exactly how and why it happened
 - c. All of the above

Answers

1. True
2. C
3. True
4. C

For more information on accident investigation and other supervisor responsibilities see the Service Lloyds website. In Risk Control's Training Materials section, we have additional resources including:

- Safety Meetings – Training Document
- OSHA Recordkeeping
- Toolbox Talks / Safety Meetings – Toolbox Talk
- Safety Supervisor Training – Toolbox Talk

Remember to practice Safety; don't learn it by accident.

*For additional assistance, please contact
RiskControl@ServiceLloyds.com
P.O. Box 26850, Austin, Texas 78755
(512) 212-7064
www.servicelloyds.com*