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Guide to Accident/Incident Investigations

(Including a Sample Investigation Form)

(Text Adopted from OR-OSHA Course 102)
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Introduction

Accidents occur when hazards escape detection during preventive measures, such as a job or process safety analysis, when hazards are not obvious, or as the result of combinations of circumstances that were difficult to foresee. A thorough accident investigation may identify previously overlooked physical, environmental, or process hazards, the need for new or more extensive safety training, or unsafe work practices. The primary focus of any accident investigation should be the determination of the facts surrounding the incident and the lessons that can be learned to prevent future similar occurrences. The focus of the investigation should NEVER be to place blame. The process should be positive and thought of as an opportunity for improvement.

Most accidents in the workplace result from unsafe work behaviors. According to the latest research, they represent the direct cause for about 95% of all workplace accidents. Hazardous conditions represent the direct cause for only about 3% of workplace accidents. "Acts of God" account for the remaining 2%. All these statistics imply that management system weaknesses account for fully 98% of all workplace accidents. Effective accident investigation identifies these root causes and recommends strategies to eliminate management system weaknesses.

When do you conduct an investigation?

As a general rule, investigations should be conducted for:

- All injuries (even the very minor ones)
- All accidents with potential for injury
- Property and/or product damage situations
- All “Near Misses” where there was potential for serious injury

Near miss and incident reporting and investigation allow you to identify and control hazards before they cause a more serious incident. Accident/incident investigations are a tool for uncovering hazards that either were missed earlier or hazards where controls were defeated. However, it is important to remember that the investigation is only useful when its objective is to identify root causes. In other words, every contributing factor to the incident must be uncovered and recommendations made to prevent recurrence.

Have a plan!

When a serious accident occurs in the workplace, everyone will be too busy dealing with the emergency at hand to worry about putting together an investigation plan, so the best time to develop effective accident investigation procedures is before the accident occurs. The plan should include procedures that determine:

- Who should be notified of accident.
- Who is authorized to notify outside agencies (fire, police, etc.)
- Who is assigned to conduct investigations.
- Training required for accident investigators:
- Who receives and acts on investigation reports.
- Timetables for conducting hazard correction.

Secure the accident scene

For a serious accident, the first action the accident team needs to take is to secure the accident scene so material evidence is not moved or removed. Material evidence has a tendency to walk off after an accident. If the accident is

quite serious, OSHA may inspect and require that all material evidence be marked and remain at the scene of the accident.

Gather information

The next step is to gather useful information about what directly and indirectly contributed to the accident. The following tools should be used to gather as much information as possible:

- Interview eye witnesses as soon as possible after the accident. Interview witnesses separately, never as a group.
- Interview other interested persons such as supervisors, co-workers, etc.
- Review related records such as:
    - Training records
    - Disciplinary records
    - Medical records (as allowed)
    - Maintenance records
    - OSHA 200 Log (past similar injuries)
    - Safety Committee records
- Document the scene with photographs, videotape, or sketches AND appropriate measurements.

Develop a sequence of events

Use the information gathered to develop a detailed step by step description of the accident. Make sure the accident is documented in enough detail to enable an individual unfamiliar with the situation to envision the sequence of events. Do not just describe the accident itself, include a description of events that led up to the accident.

Analyze the accident

The next step is to determine the cause(s) of the accident. This is the most difficult step because first the events must be analyzed to discover surface cause(s) for the accident, and then, by asking "why" a number of times, the related root causes are uncovered. Remember, surface causes are usually pretty obvious and not too difficult to determine. However, it may take a great deal more time to accurately determine the weaknesses in the management system, or root causes, that contributed to the conditions and practices associated with the accident.

More on surface causes

The surface causes of accidents are those hazardous conditions and individual unsafe employee/manager behaviors that have directly caused or contributed in some way to the accident.

Hazardous conditions may exist in any of the following categories:

- Materials
- Machinery
- Equipment
- Tools
- Chemicals
- Environment
- Workstations
- Facilities
- People
- Workload

It's important to know that most hazardous conditions in the workplace are the result of an unsafe behaviors that produced them. Individual unsafe behaviors may occur at any level of the organization.

Some example of unsafe employee/manager behaviors include:

- Failing to comply with rules
- Using unsafe methods
- Taking shortcuts
- Horseplay
- Failing to report injuries
- Failing to report hazards
- Allowing unsafe behaviors
- Failing to train
- Failing to supervise
- Failing to correct
- Scheduling too much work
- Ignoring worker stress

More on root causes

The root causes for accidents are the underlying system weaknesses that have somehow contributed to the existence of hazardous conditions and unsafe behaviors that represent surfaces causes of accidents. Root causes

always pre-exist surface causes. Inadequately designed system components have the potential to feed and nurture hazardous conditions and unsafe behaviors. If root causes are left unchecked, surface causes will flourish!

Root causes may be separated into two categories:

- **System design weaknesses.** Missing or inadequately designed policies, programs, plans, processes and procedures will affect conditions and practices generally throughout the workplace. Defects in system design represent hazardous system conditions.
- **System implementation weaknesses.** Failure to initiate, carry out, or accomplish safety policies, programs, plans, processes, and procedures. Defects in implementation represent ineffective management behavior.

System Design Weaknesses

- Missing or inadequate safety policies/rules
- Training program not in place
- Poorly written plans
- Inadequate process
- No procedures in place

System Implementation Weaknesses

- Safety policies/rules are not being enforced.
- Safety training is not being conducted
- Adequate supervision is not conducted
- Incident/Accident analysis is inconsistent
- Lockout/tagout procedures are not reviewed annually

Develop preventive actions

This is the most important piece of any investigation. All of the work done to this point culminates with recommendations to prevent similar accidents from happening in the future. Recommendations should relate directly to the surface and root causes for the accident. These recommendations should include recommended actions such as:

- Engineering controls (for example, local exhaust ventilation or use of an lift assisting device)
- Work practice controls (for example, pre-plan work or remove jewelry and loose fitting clothing before operating machinery)
- Administrative controls (for example, standard operating procedures or worker rotation)
- Personal protective equipment (for example, safety glasses or respirators)

It is crucial that, after making recommendations to eliminate or reduce the surface causes, that the same procedure is used to recommend actions to correct the root causes. If root causes are not corrected, it is only a matter of time before a similar accident occurs.

Summary

A successful accident investigation determines not only what happened, but also finds how and why the accident occurred. Investigations are crucial as an effort to prevent a similar or perhaps more disastrous sequence of events. Research has shown that a typical accident is the result of many related and unrelated factors that somehow all come together at the same time. It is estimated that there are usually more than ten factors that contribute to a serious accident. Although, this combination of factors normally makes an investigation very time consuming and resource intensive, the good news is that the accident can normally be prevented by removing only a few of the contributing factors.

Attached is a typical accident/incident investigation form to assist you in determining surface and root causes as well as track progress on preventative actions. Should you have additional questions on this subject, please feel free to call us at (970) 491-6151.

Incident Investigation Form

INCIDENT INFORMATION				
Date of Accident	Time	Day of Week □ S □ M □ T □ W □ T □ F □ S	Shift □ 1 □ 2 □ 3	Department

INJURED PERSON

Name:		Address:		
Age:	Phone:			
Job Title:		Supervisor Name:		
Length of Employment at Company:		Length of Employment at Job:		
Employee Classification: □ Full Time □ Part Time □ Contract □ Temporary				

Nature of Injury				
□ Bruising	□ Dislocation	□ Other (specify)	Injured Part of Body:	
□ Strain/Sprain	□ Scratch/Abrasion	□ Internal		
□ Fracture	□ Amputation	□ Foreign Body	Remarks:	
□ Laceration/Cut	□ Burn/Scald	□ Chemical Reaction		

Treatment	Name and Address of Treating Physician or Facility
□ First Aid	
□ Emergency Room	
□ Dr.'s Office	
□ Hospitalization	

DAMAGED PROPERTY

Property, Equipment, or Material Damaged	Describe Damage
Object or Substance Inflicting Damage:	

INCIDENT DESCRIPTION

Describe what happened (attach photographs or diagrams if necessary)

ROOT CAUSE ANALYSIS (Check All that Apply)

Unsafe Acts		Unsafe Conditions		Management Deficiencies	
Improper work technique		Poor workstation design or layout		Lack of written procedures or policies	
Safety rule violation		Congested work area		Safety rules not enforced	
Improper PPE or PPE not used		Hazardous substances		Hazards not identified	
Operating without authority		Fire or explosion hazard		PPE unavailable	
Failure to warn or secure		Inadequate ventilation		Insufficient worker training	
Operating at improper speeds		Improper material storage		Insufficient supervisor training	
By-passing safety devices		Improper tool or equipment		Improper maintenance	
Guards not used		Insufficient knowledge of job		Inadequate supervision	
Improper loading or placement		Slippery conditions		Inadequate job planning	
Improper lifting		Poor housekeeping		Inadequate hiring practices	
Servicing machinery in motion		Excessive noise		Inadequate workplace inspection	
Horseplay		Inadequate guarding of hazards		Inadequate equipment	
Drug or alcohol use		Defective tools/equipment		Unsafe design or construction	
Unnecessary haste		Insufficient lighting		Unrealistic scheduling	
Unsafe act of others		Inadequate fall protection		Poor process design	
Other:		Other:		Other:	

INCIDENT ANALYSIS

Using the root cause analysis list on the previous page, explain the cause(s) of the incident in as much detail as possible.	
How bad could the accident have been? □ Very Serious □ Serious □ Minor	What is the chance of the accident happening again? □ Frequent □ Occasional □ Rare

PREVENTIVE ACTIONS

Describe actions that will be taken to prevent recurrence.	Deadline	By Whom	Complete

INVESTIGATION TEAM

Signature	Name	Position