

Accident Investigation Basics



Investigation Philosophy

- What is an accident or incident?
- What should you investigate?
- How do you find the root cause?
- How should you investigate?
- What should be the results of the investigation?
- What are you legally required to do?



Think about the difference between incident and accident.

What RESULTS are you looking for: This would include removing or minimizing the potential for another occurrence. To seek to minimize the pain and suffering, equipment damage, loss of morale. Empower employees by having a system to address unsafe conditions or acts before other or more serious injuries occur

What Is An Accident?

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



Most everyone would agree that an accident is unplanned and unwanted. The idea that an accident is controllable might be a new concept. An accident stops the normal course of events and causes property damage, or personal injury, minor or serious and occasionally results in a fatality.

What is an "Accident"?

Predictable - the logical outcome when hazards exist
Preventable or avoidable - hazards do not have to exist.
They are caused by things we do -- or fail to do.



Accident definition: "an unforeseen event", "chance", "unexpected happening", formerly "Act of God"

What Is An Incident?

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

Example of an incident: A 50 lb carton falls off the top shelf of a 12' high rack and lands near a worker. This event is unplanned, unwanted, and has the potential for injury.



In today's culture: An incident disrupts the work process, does not result in injury or damage, but should be looked as a "wake up call". Could be thought of as the first of a series of events which could lead to a situation in which harm or damage occurs. We investigate an incident to determine the root cause and use the information to stop process and/or behaviors that could have more severe results.

Your policy needs to encourage resolution of incidents, near-misses, it's worth the time and effort.

Accidents Don't Just Happen

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

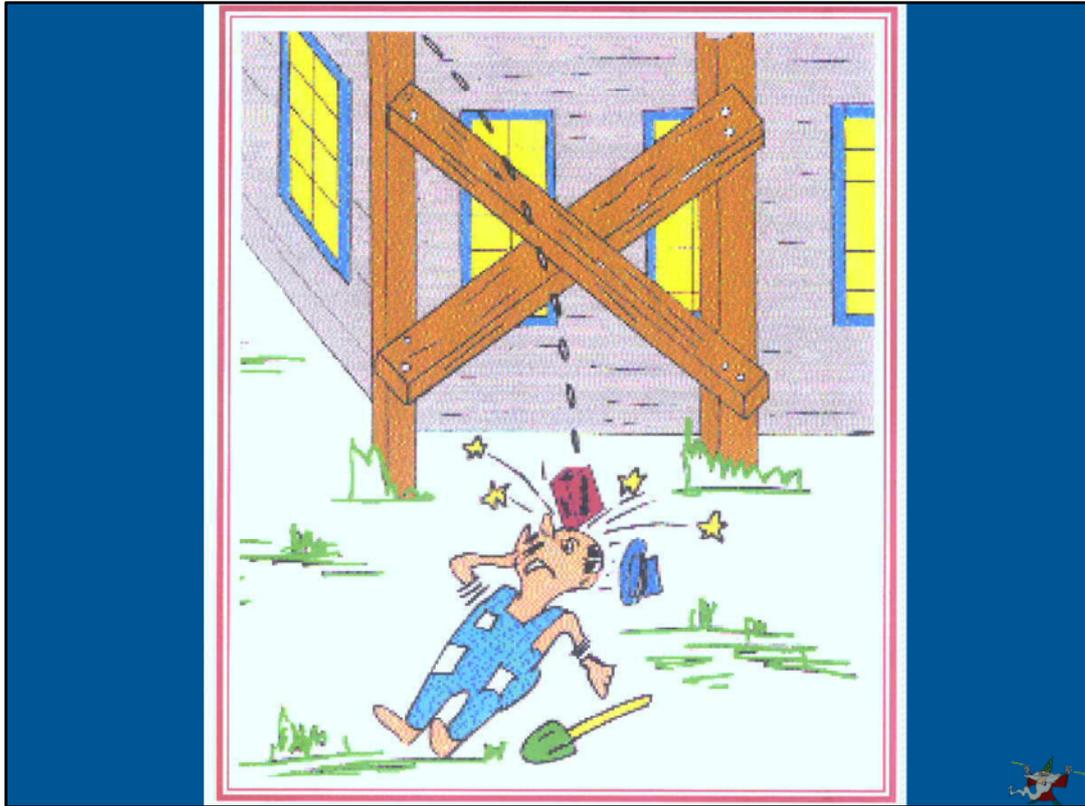


Most workplace injuries and illness are not due to “accidents”. The term accident is defined as an unexpected or unintentional event, that it was “just bad luck”. More often than not it is a predictable or foreseeable “eventuality”.

By “accidents” we mean events where employees are killed, maimed, injured, or become ill from exposure to toxic chemicals or microorganisms (TB, Hepatitis, HIV, Hantavirus etc).

A systematic plan and follow through of investigating incidents or mishaps and altering behaviors can help stop a future accident.

Let's take our mythical 50 lb carton falling 12', for the 2nd time, only this time it hits a worker, causing injury. Predictable? Yes. Preventable? Yes.



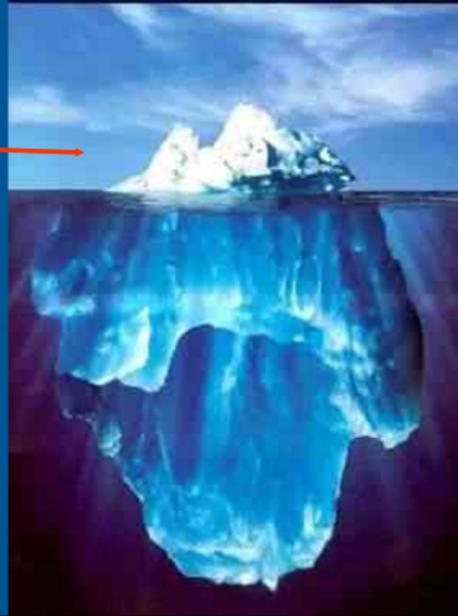
Look at it as the “Tip of the Iceberg”

Accidents

Accidents or injuries represent only a fraction of the errors that exist.

Incidents

Investigate incidents since they are potential “accidents in progress”.



Too often companies only investigate “accidents”. If you wait until severity requires investigation it’s too late for the victims.

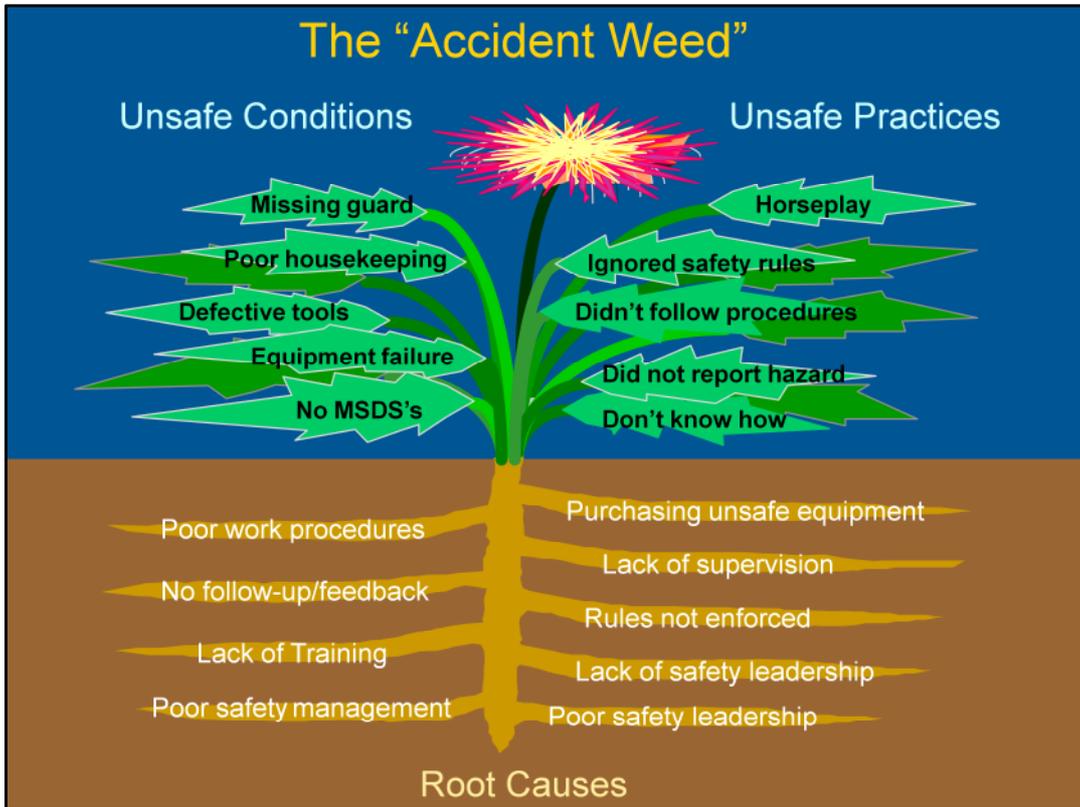
Incidents should also be reported and investigated. They are our rehearsal for “accidents”.

Criteria for investigating an incident:

What is reasonably the worst outcome, equipment damage, or injury to the worker?

What might the severity of the worst outcome have been?

If it has the potential to result in significant property loss or a serious injury, then the incident should be investigated with the same thoroughness as an accident investigation.



The symptoms are visible, root causes lie beneath the surface.

Root Cause Analysis

Direct Cause

Ex.- Unplanned release of energy or hazardous materials

Indirect Cause

Ex.- Unsafe acts and/or unsafe conditions

Root Cause

Ex. - policies, decisions, personal, or environmental factors



Root cause analysis (RCA) is a systematic technique that focuses on finding the real cause of a problem and dealing with that, rather than just dealing with its symptoms.

A direct cause is the cause that directly resulted in the occurrence. Example: in the case of a leak, the direct cause could have been the problem in the component or equipment that leaked. In the case of a system misalignment, the direct cause could have been operator error in adjustment of the alignment.

An indirect cause is the cause that contributed to the occurrence but, by it self, would not have caused the occurrence. Examples: in the case of the leak, the indirect cause could be lack of adequate operator training in detecting the leak and identifying its source. In the case of the system misalignment, an indirect cause could be that the operator was distracted or that the tools to align the equipment had not been calibrated properly.

A root cause is the cause that, if corrected, would prevent recurrence of this and similar occurrences. Example: in the case of the leak the root cause could be management not ensuring that the equipment is properly maintained. In the case of the system misalignment, the root cause could be an ineffective training program.

A root cause of a consequence is any basic underlying cause that was not in turn caused by more important underlying causes.

The Five Whys

- The “five whys” is one of the simplest of the root cause analysis methods. It is a question-asking method used to explore the cause/effect relationships underlying a particular problem.



The five whys is one of the simplest of the root cause analysis methodologies. It is a question asking method used to explore the cause/effect relationships underlying a particular problem. Ultimately, the goal of applying the 5 Whys method is to determine a [root cause](#) of a [defect](#) or problem. The following example demonstrates the basic process:

My car will not start. (the problem)

- 1) *Why?* - The battery is dead. (first why)
- 2) *Why?* - The alternator is not functioning. (second why)
- 3) *Why?* - The alternator belt has broken. (third why)
- 4) *Why?* - The alternator belt was well beyond its useful service life and has never been replaced. (fourth why)
- 5) *Why?* - I have not been maintaining my car according to the recommended service schedule. (fifth why, root cause)

Note that the questioning for this example could be taken further to a sixth, seventh, or even greater level. This would be legitimate, as the *five* in *five whys* is not gospel; rather, it is postulated that five [iterations](#) of asking why is generally sufficient to get to a root cause. The real key is to encourage the troubleshooter to avoid assumptions and logic traps and instead to trace the chain of causality in direct increments from the effect through any layers of abstraction to a root cause that still has some connection to the original problem.

Benefit of Asking the Five Whys

Simplicity. It is easy to use and requires no advanced mathematics or tools.

Effectiveness. It truly helps to quickly separate symptoms from causes and identify the root cause of a problem.

Comprehensiveness. It aids in determining the relationships between various problem causes.

Flexibility. It works well alone and when combined with other quality improvement and trouble shooting techniques.

Engaging. By its very nature, it fosters and produces teamwork and teaming within and without the organization.

Inexpensive. It is a guided, team focused exercise. There are no additional costs.

Often the answer to the one "why" uncovers another reason and generates another "why." It often takes "five whys" to arrive at the root-cause of the problem. You will probably find that you ask more or less than "five whys" in practice.



Why Investigate?

- Prevent future incidents or accidents).
- Identify and eliminate hazards.
- Expose deficiencies in process and/or equipment.
- Reduce injury and worker compensation costs.
- Maintain worker morale.
- Improve process, timing, profits, working conditions etc...

Investigate All Incidents and Accidents

- Conduct and document an investigation that answers:
 - Who was present?
 - What activities were occurring?
 - What happened?
 - Where and what time?
 - Why did it happen?



Example: An employee gets cut. What is the cause? It is not just the saw or knife or the sharp nail. Was it a broken tool and no one reported? Did someone ignore a hazard because of lack of training, or a policy that discourages reporting? What are other examples of root causes? *Enforcement failure, defective PPE, horseplay, no recognition plan, inadequate labeling.*

Investigate All Incidents and Accidents

- Is this a company or industry-recognized hazard?
- Has the company taken previous action to control this hazard?
- What are those actions?
- Is this a training issue?



How To Investigate – Main Steps



Develop a plan

Assemble an investigation kit

Investigate all incidents and accidents immediately

Collect facts

Interview witnesses

Write a report



The time to develop your Company's Accident Investigation Plan is before you have an incident or an accident.

The who, when, where, what and how should be developed before the incident.

Accident Investigation Training, investigation tools and your policies and procedures should be developed before the incident or accident.

One size will not fit all. Your Company's motor vehicle investigation reports will differ from your warehouse investigations as will your off-site investigations.

How To Investigate

Develop a plan



Tips for Developing An Accident Investigation Plan

- Develop your action plan ahead of time.
- Your plan might include:
 - Who to notify in the workplace?
 - How to notify outside agencies?
 - Who will conduct the internal investigation?



Preplanning will help you address situations timely, reducing the chance for evidence to be lost and witnesses to forget. All procedures, forms, notifications, etc. need to be listed out as step-by-step procedures. You might wish to develop a flow chart to quickly show the major components of your program.

Tips for Developing a Plan (continued)

- What level of training is needed?
- Who receives report?
- Who decides what corrections will be taken and when?
- Who writes report and performs follow up?

Some expansion questions on the above points are:

Who will be trained to investigate?

Who is responsible for the finished report and what is the time frame?

Who receives copies of the report?

Who determines which of the recommendations will be implemented?

Who is responsible for implementing the recommendations?

Who goes back and assures that fixes are in place?

Who assures that fixes are effective?

The plan should provide instructions on actions to be taken by key people in your business, assigning roles and responsibilities.

What Should Be In The “Investigation Kit”

Camera equipment	First aid kit
Tape recorder	Gloves
Tape measure	Large envelopes
High visibility tape	Report forms
Scissors	Graph paper
Scotch tape	
Sample containers with labels	
Personal protective equipment	
Items specific to your worksite	



These are some common items for a kit. What else might be useful? Anything from specific types of businesses that might be needed?

Begin Investigation Immediately

- It's crucial to collect evidence and interview witnesses as soon as possible because evidence will disappear and people will forget.



This statement is true for both near-misses, mishaps (incidents) as well as accidents in which injuries or illnesses have resulted.

How Do You Start the Investigation?

- Notify individuals according to your “plan”
- You must involve an employee representative, the immediate supervisor, and other people with knowledge
- Grab your “investigation kit”
- Approach the scene

Actions At The Accident Scene

- Check for danger
- Help the injured
- Secure the scene
- Identify and separate witnesses
- Gather the facts



First, make sure you and others don't become victims! Always check for still-present dangerous situations. Then, help the injured as necessary. Secure the scene and initiate chains of custody for physical evidence. Identify witnesses and physical evidence. Separate witnesses from one another. If physical evidence is stabilized, then begin as quickly as possible with interviews.

REMEMBER, BE A GOOD LISTENER

Fact Finding

- Witnesses and physical evidence
- Employees/other witnesses
- Position of tools and equipment
- Equipment operation logs, charts, records
- Equipment identification numbers



you should take notes or recordings at the accident or incident scene.

Fact Finding

- Take notes on environmental conditions, air quality
- Take samples
- Note housekeeping and general working environment
- Note floor or working surface condition
- Take many pictures
- Draw the scene



Some scenes are more delicate than others. If items of physical evidence are time sensitive address those first. If items of evidence are numerous then you may need additional assistance. Some scenes will return to normal very quickly. Are you prepared to be able to recreate the scene from your documentation? Consider creating a photo log. The log should describe the date, time, give a description of what is captured in the photo and directionality. Link to sketch of accident scene.

Example: *Photo # 4, February 1, 2004, 10:36 AM, Northeast corner of Warehouse Number 2, Row 11, Bin 14, showing carton that fell from top shelf. Note: crushed bottom corner of carton and wet area under carton on floor.*

Link to sketch of bakery accident scene: *Tell the audience how much information can be captured through a simple line drawing using stick figures. They don't need to be an artist.*

Interview Witnesses

- Interview promptly after the incident
- Choose a private place to talk
- Keep conversations informal
- Talk to witnesses as equals
- Ask open ended questions
- Listen. Don't blame, just get facts
- Ask some questions you know the answers to



Your method and outcome of interview should include: who is to be interviewed first, who is credible, who can corroborate information you know is accurate, how to ascertain the truth bases on a limitation of numbers of witnesses. Be respectful - are you the best person to conduct the interview?
If the issue is highly technical, consider an internal or external specialist for assistance.

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If the issue is highly technical consider a specialist, this may be an internal resource or it may be an outside resource.

Write a Report

The report should include:

- An accurate narrative of “what happened”
- Clear description of unsafe act or condition
- Recommended immediate corrective actions
- Recommended long-term corrective actions
- Recommended follow up to assure fix is in place & corrective action is effective.



Incident and Accident reports are a compilation of facts.

Write The Report

- How and why did the accident happen?
 - A list of suspected causes and human actions
 - Use information gathered from sketches, photographs, physical evidence, witness statements

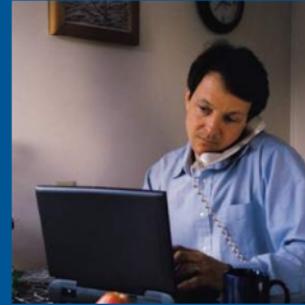


Remember that your report needs to be based on facts. All recommendations should be based on accurate documented findings of facts and all findings and recommendations should be from verifiable sources.

Write The Report

Answer the following in the report:

- When and where did the accident happen?
- What was the sequence of events?
- Who was involved?
- What injuries occurred or what equipment was damaged?
- How were the employees injured?



A timeline or chronological narrative is sometimes helpful.

Conclusions of Report

Report conclusions should answer the following:

- What should happen to prevent future accidents?
- What resources are needed?
- Who is responsible for making changes?
- Who will follow up and insure changes are implemented?
- What will be the future long-term procedures?

If additional resources are needed during the implementation of recommendations, then provide options. Having a comprehensive plan in place will allow for the success of your investigation. Success of an investigation is the implementation of viable corrections and their ongoing use.

The outcome of an investigation of the 50 lb. carton falling off the top shelf of the 12 ft. high rack might include correction of sloppy storage at several locations in the warehouse, moving unstable/heavy items to floor level, conducting refresher training for stockers on proper storage methods, and supervisors doing daily checks.

Conclusions must always be based upon facts found during your investigation. If additional resources are needed during the implementation of recommendations then provide options. Having a comprehensive plan in place will allow for the success of your investigation. Success of an investigation is the implementation of viable corrections and their ongoing use.

Report A Death or Hospitalization

- Report the death, probable death, or the in-patient hospitalization of 1 or more employees within 8 hours to OSHA

The required information that must be provided to OSHA:

- 1- Name of the work place
- 2- Location of the incident
- 3- Time and date of the incident
- 4- Number of fatalities or hospitalized employees
- 5- Contact person
- 6- Phone number
- 7- Brief description of the incident

Do Not Move Equipment

- IF: A death or probable death happens or one or more employees are admitted to the hospital
- THEN: You must not move any equipment until local authorities say you can
- UNLESS: You must move the equipment to remove victims or prevent further injury

Having a plan in place allows you to document the scene, identify witnesses, and establish a chain of custody for physical evidence.

Assign People to Assist

- The immediate supervisor of victim
- employees who witnessed the accident
- other employees as are necessary

Having an Accident Investigation Plan in place allows for an organized systematic approach and lends to the appearance of a structured, thought out program.

Conduct a Preliminary Investigation

(Required for all serious injuries)

- Evaluate facts relating to cause of accident by involving the following people:
 - Person assigned by employer
 - Immediate supervisor of injured employee
 - Witnesses
 - Employee representative
 - Any other person who has the experience and skills

- Document your findings

What is a serious injury? There is no definition in the rule. The employer is left to make that determination. Certainly medical treatment beyond first-aid. Points to discuss with the audience: Did the accident produce an acute or chronic injury, is it recordable on the OSHA 300, what about loss time, restrictions or transfer?

