

## ACCIDENT INVESTIGATION FOR EVERYONE

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation. Featured are:

**INTRODUCTION:** A brief description of the program and the subject that it addresses.

**PROGRAM OUTLINE:** Summarizes the program content. If the program outline is discussed before the video is presented, the entire program will be more meaningful and successful.

**PREPARING FOR AND CONDUCTING THE PRESENTATION:** These sections will help you set up the training environment, help you relate the program to site-specific incidents, and provide program objectives for focusing your presentation.

**REVIEW QUESTIONS AND ANSWERS:** Questions may be copied and given to participants to document how well they understood the information that was presented. Answers to the review questions are provided separately.

### INTRODUCTION

Accident investigation is a key component of an effective safety process, but very few investigations achieve their intended purpose. All too often the focus of an investigation is finding someone responsible for an incident, but it should really be about finding facts, finding real causes and finding the fixes that will prevent the incident from happening again. For an accident investigation to be successful, it must lead to proactive safety improvements and injury prevention.

This program will help everyone involved in an investigation—management, employees and investigators—understand their roles in the process. Viewers will also learn how to recognize common mistakes made during investigations and how to make the right changes that can prevent injuries and improve workplace safety.

### PROGRAM OUTLINE

#### THE IMPORTANCE OF ACCIDENT REPORTING

- A good accident investigation can lead to solutions that will prevent recurrence of common workplace incidents and quite possibly a more serious injury.
- Many incidents will never be successfully investigated, however, because they will never be reported.
- An employee who cut his hand works for a company that gives awards for not getting hurt, so he doesn't want to report his injury and ruin the prize for everyone else.
- A near-miss incident in which a large pipe almost hits a pedestrian won't be reported because nobody was hurt and the workers involved think they solved the problem themselves.
- A burn injury that occurred when an employee passed by a hot work station won't be reported either. The employee's best friend got hurt last year and had a very unpleasant experience from the investigation.
- We don't want to drive injuries underground by emphasizing bad measuring systems. We need to make sure that everyone understands that there are lessons to be learned from *all* incidents, so report them all—even close calls.
- We need to learn how to conduct proper and professional investigations. The focus of an accident investigation is finding facts, finding real causes and finding the fixes that will keep it from happening again.
- Everyone plays a role; it's a team effort: employees, management and the investigators must all understand their role and responsibilities.

#### THE EMPLOYEE'S ROLE & RESPONSIBILITIES

- Say a co-worker in a machine shop suffers a pretty severe hand injury. What should you do?
- Always remember to call for help first. Call 911 or however you activate your emergency response system.

- After the injured person is taken care of, there will be a lot of confusion and very little direction. This is why it is important for everyone know how to react when the unexpected happens.
- Once the victim gets help, we need to preserve the scene. We need to install caution tape or some type of barricade, just like you've seen done in crime scenes on TV.
- An undisturbed scene can reveal a lot of information. For example, if a light curtain or proximity sensor were disturbed during the clean up, it may be impossible to determine if they were working correctly before the injury.
- Employees who witnessed the incident or who work in the immediate area must be prepared to describe what they have seen because they are likely to be interviewed.
- It is also important to remain calm because factual recall following a traumatic incident can be unpredictable, especially as time passes. Take a moment to reflect on your observations; write down details such as machine settings, positions of people and equipment and anything else you feel may be important.
- During the interview, keep your observations factual. Don't speculate, guess or make assumptions about what you think happened.
- Don't try to hide or cover up details that may make yourself or others look bad.
- If you follow these guidelines, you'll do just fine and you'll provide valuable information.

#### **MANAGEMENT'S ROLE IN THE INVESTIGATION**

- Management must be willing to let the investigative process happen and provide the resources and support for the effort.
- Of course, we cannot provide infinite resources to every investigation. Decisions must be made on a case-by-case basis as to how much time, effort and money we're going to apply to any given incident.
- Some factors that will help make this decision are the complexity, potential and severity of the incident.
- A burn injury is not very complex and should not require many resources to conduct a proper investigation, while a complex chemical plant explosion will require more resources. So complexity must be the first factor considered when deciding how many resources to allocate.
- Next, we must consider the potential of the incident. The near miss with the large pipe had a high potential for serious injury, therefore requiring significant resources even though no injury took place. A minor cut with a box cutter, while important, has much less potential and is not very complex; therefore, fewer resources are required.
- Often, the near miss which could have been fatal rarely gets investigated, while the minor cut draws a five-person team searching for the perfect knife or cut-resistant glove.
- This is poor utilization of our resources; we should always apply our greatest resources to the most complex and high-potential incidents.
- Finally, management is responsible for considering and approving the proposed solutions and then ensuring they are implemented.

#### **THE ROLE OF INVESTIGATORS**

- The people with the most visible role in the process are the investigators. They will examine the facts and evidence, conduct interviews, determine true causes and make recommendations for corrective actions.
- The investigation team should represent a cross-section of the organizational structure, from the shop floor workers who are the experts on the work involved to upper management, so all perspectives can be considered.

- Members should be selected because of their technical skills and critical thinking abilities. Members of the investigation team must be fair and objective.
- Each investigation is an opportunity to find true causes and real solutions. Many investigations go wrong at the start because investigators make assumptions based on preconceived ideas or incomplete information.
- A good investigator will start by documenting the evidence and the facts, then analyzing them to determine what happened and ultimately, why it happened.
- An important part of the investigator's job is helping everyone understand and believe that the investigation is looking for solutions, and not simply seeking to hold someone responsible and move on.
- Regardless of the circumstances, investigators must make special effort to not play the "blame game." Finding someone to blame may be faster and easier, but all it does is divert attention away from the real problems.
- A heavy load is borne by the investigation team to maintain a high level of integrity and utilize critical thinking skills that draw conclusions from the evidence and facts.

### **GATHERING DATA & CONDUCTING INTERVIEWS**

- To start gathering data, we must first document the scene. The investigator will observe and take notes on the state of the scene, what evidence is there and where it is located.
- He may take measurements and photographs as a way to preserve the evidence. Examining the scene can provide many useful facts and should be done in a thorough and methodical manner, making sure to document all evidence before releasing the scene.
- Conducting interviews with witnesses and knowledgeable employees is another way to gather valuable information, but it must be done carefully.
- Make sure the person being interviewed is comfortable and explain the purpose of the interview and the investigation.
- During the interview, we need to pay special attention to the words we use and the questions we ask. There are a few simple words to use during the initial stages of an interview to establish basic facts: who, when and where.
- For example, who did you see operating the pipe cart at the time of the incident? When did you notice the pedestrian on the walkway? Where was the pipe cart operator standing?
- Who, when and where are three simple fact-finding words that help us to establish critical information.
- Another word that is useful is "what", but we have to use this word with caution, because it can sometimes ask for speculation rather than fact. For example, asking a witness "what happened?" will solicit an opinion as to what they think happened, while asking "what did you see?" limits the scope to only what they witnessed first hand.
- "How" and "why" are very powerful words, but they don't serve us well during the initial stages of an interview. Both call for an opinion or speculation rather than fact.
- In addition, the word "why" can create an accusatory tone and can be inflammatory. For example, "why did you stick your hand in the machine?" or "why didn't you follow procedures?" This kind of questioning can be counterproductive and places witnesses and co-workers on the defensive.
- Investigators must learn to sift through contradictory statements, assumptions, hearsay and misperceptions to get to the truth. A properly conducted investigation makes this much easier, while a poorly conducted one makes it almost impossible.

## **CAUSE ANALYSIS**

- We begin to analyze how and why the incident occurred so we can determine the underlying causes. To analyze the causes, we must consider the “components of risk”—hazards, control systems and employee actions.
- Hazards are everywhere and it always best to remove or engineer out the hazards, but all hazards can't be removed or engineered out of existence.
- Since we can't eliminate hazards such as a set of stairs or the points of operation on a machine, we use control systems to control the risk. Control systems are everything we do to keep the incident from happening.
- We design and build for safety, install guards, write procedures, train employees, inspect the workplace and observe workers. Just because we have all these systems in place does not mean they are working.
- Lastly, we must consider the human factor—employee actions. For example, if an employee decides to carry a large box that blocks his view and blindly walks down the stairs, resulting in a missed step and fall, our control systems cannot prevent that.
- If an employee removes the guard and tries to clean the machine while it is running, our control systems can't prevent that either.

## **EVALUATING COMPONENTS OF RISK**

*An employee slips on some fluid in a walkway.*

### **The Hazard**

- Asking how and why can help us understand how the hazard came to be there.
- Why is the fluid there? We learn that it leaked from a nearby container.
- How did it leak? Upon examination, it was found that a valve was leaking.
- Why was the valve leaking? It was installed without a gasket.
- Why was it installed without a gasket? The worker who installed it didn't know where to find one and he didn't think it would matter anyway.
- Why didn't he know where to find the gasket? The parts area is a big mess and the only guy who seems to be able to find anything is on vacation.
- Notice we asked how or why about five times to identify some causes of the hazard. If we had just stopped at identifying the hazard as fluid on the floor or at the leaking valve, we would have missed out on some important information.

### **Control Systems**

- When looking at our control systems, we find that there was no review or approval process for locating the container near the walkway. While there were safer locations in containment areas, it was placed there for convenience.
- Oil on the floor has been noted by employees and during inspections before, but the cause of the leak was never determined or corrected—a weak corrective action system.
- We have found that our control systems are pretty weak.

### **Employee Actions**

- Finally, we must look at the employee actions. The action of the employee was to step in the fluid.
- Why did the worker step into the fluid? Because she didn't see that it was there.

- Why didn't she see it? She was not paying attention to her path of travel.
- Why wasn't she paying attention? She was from another department where walkways were always kept clear and clean, so she assumed the walkway would be safe.
- Without looking at each of the three components of risk, we may have failed to find the real causes that must be corrected.
- In almost all cases, if the sole recommendation to prevent recurrence is to counsel and retrain the employee to be more careful and pay close attention, you're most likely wasting your time.
- We need to look at the hazard, the control systems and the actions of employees so we can understand the multiple causes of an accident. Only then can we find the solutions that will keep it from happening again.

### **PRIORITY OF CONTROLS**

- After we have made a list of solutions, we must decide which ones to implement. We need to follow a priority of controls and the highest priority solution is to eliminate the hazard.
- If that's not possible, the next choice is to use engineering methods to control exposure to the hazards. For example, we can install machine guards or proximity sensors.
- If engineering controls won't work, we can consider administrative controls. For example, we can restrict access to an area or we can improve a work procedure.
- The last choice, and least effective one, is to rely on retraining and PPE to protect employees from a hazard.
- While blaming the employee may be the number one mistake made by an investigation team, it is also clear that employee action is one of the components of risk that must be examined. If the hazard cannot be eliminated and the control systems are strong, correcting employee action through discipline may be the most appropriate solution.
- If it looks like your investigation is heading in this direction, then be careful to honestly evaluate your control systems. If supervisors are looking the other way and other workers admit they don't follow procedure, then you don't really have a strong control system.
- On the other hand, a habitual risk-taker who ignores rules, takes chances and places himself and others in dangerous situations must be dealt with, not only for his safety but ours as well.

### **IMPLEMENTATION & FOLLOW UP**

- Once solutions are decided upon, a corrective action list should be generated and all action items completed. If the report goes in a file and collects dust—nothing happens!
- Part of the investigation process must include a means to follow up on the action items generated to achieve a resolution. Follow up afterwards to determine how the changes are working, and if any unforeseen problems are occurring.
- Because everyone plays a role in a successful investigation, everyone must also be involved in the solutions. Communicate to all involved the solutions that were selected, how and when they will be implemented and why other solutions were not chosen.
- If procedures or processes will be changed, be sure to get input and suggestions from those employees who perform the tasks.
- In the real world, keeping people involved goes a long way towards a successful solution.

## **PREPARE FOR THE SAFETY MEETING OR TRAINING SESSION**

Review each section of this Leader's Guide as well as the videotape. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Make an attendance record and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

### **Here are some suggestions for preparing your videotape equipment and the room or area you use:**

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the videotape program.

Place or secure extension cords to prevent them from becoming a tripping hazard.

## **CONDUCTING THE PRESENTATION**

Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.

Explain that the primary purpose of the program is to explain how a successful accident investigation is conducted and the roles that management, employees and investigators play in an investigation.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Lead discussions about how the accident investigation process at your facility can be improved.

After watching the videotape program, the viewer will be able to explain the following:

- The significance of reporting an accident in the first place;
- The role of employees, management and investigators in the investigative process;
- The questions that are most effective when interviewing an accident witness;
- The process for analyzing components of risk and implementing solutions;
- The importance of following up after solutions have been implemented.

**ACCIDENT INVESTIGATION FOR EVERYONE**  
**REVIEW QUIZ**

Name \_\_\_\_\_ Date \_\_\_\_\_

*The following questions are provided to check how well you understand the information presented during this program.*

1. What is the first thing that should be done when a co-worker suffers an injury?
  - a. preserve the injury scene
  - b. call for help
  - c. clean up any blood in the area
  
2. An investigation team should include members from the shop floor as well as those in upper management.
  - a. true
  - b. false
  
3. What are the best fact-finding words to use when establishing critical information during a witness interview?
  - a. how and why
  - b. who, when and where
  - c. what and why
  
4. All injuries and even close calls should be reported.
  - a. true
  - b. false
  
5. Which of the following is least effective when implementing solutions for controlling exposure to hazards?
  - a. engineering controls
  - b. administrative controls
  - c. retraining & PPE for employees
  
6. Correcting employee action through discipline is never an appropriate solution to a problem being investigated.
  - a. true
  - b. false
  
7. Who has the most visible role in the accident investigation process?
  - a. management
  - b. employees
  - c. investigators

**ACCIDENT INVESTIGATION FOR EVERYONE**  
***ANSWERS TO THE REVIEW QUIZ***

1. b
2. a
3. b
4. a
5. c
6. b
7. c