Oregon OSHA
Accident Investigation

STUDENT WORKBOOK

OSHA | Oregon OSHA
Department of Consumer and Business Services

Oregon OSHA Accident Investigation

Presented by Oregon OSHA Public Education — Our Mission:

We provide knowledge and tools to advance self-sufficiency in workplace safety and health.

OSHA | Oregon OSHA

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Welcome!

This workshop is part of a blended learning program, which also includes our online Accident Investigation course, which can be accessed at: osha.oregon.gov/edu/courses/Pages/default.aspx.

This workshop is designed to help you gain the basic skills necessary to conduct an effective accident investigation at your workplace. We'll work through the three primary tasks of the accident investigator; discuss employer responsibilities; and learn how to write an accident report.

The more you contribute, the more you'll get out of this training. Participate and have fun!

Goals

Given the information and exercises in this workshop, you should be better able to complete the three primary tasks of an accident investigator:

1. Gather useful information
2. Analyze the facts surrounding the accident
3. Write the accident report

The basics

Accident investigation definitions

Accident	An unexpected incident or exposure that results in an injury or illness to an employee or property damage.
Incident	Often referred to as a near miss, this is an event that could have resulted in personal harm or property damage.
Lost-time injury	When an employee gets injured while carrying out a work task for the employer and is unable to come in for their next shift or a longer stretch of time.
Hazard	A thing or object that has the potential to harm or cause illness.
Physical Exposure	An exposure which you must come into contact with to cause an injury or illness.
Environmental Exposure	You must be in the general area to be affected (examples include loud noises and chemical fumes).
Direct cause	The result of the condition and/or behavior; the final event which produces an accident.
Surface cause	Hazardous conditions and unsafe employee/management behaviors that produced the accident.
Root cause	The underlying reason the surface cause exists.
Personal Protective Equipment (PPE)	Equipment worn to minimize exposure to a variety of hazards. Examples include gloves or hard hats.
Unsafe conditions	Unsafe equipment/tools that directly cause the accident.
Unsafe actions	Harmful behavior that contributed to the accident; this can include gaps in safety training for staff members.
System weaknesses	Underlying inadequate or missing programs, plans, policies, processes, and/or procedures that contributed to the accident.

Identify the proper steps for conducting an accident investigation

Identifying the causes of accidents can include:

- A direct cause
- Surface causes
- Root causes

The purpose of investigating accidents is to determine the following:

- The cause of the accident
- What changes need to be implemented
- If this affects other work areas and locations
- What policies and procedures may need to be changed

Where do workplace injuries come from?

- Unpreventable acts account for only 2 percent of all workplace accidents
- Hazardous conditions account for less than 10 percent of all workplace accidents
- Hazardous practices account for the majority (88 percent) of all workplace accidents

The fact that unsafe practices and conditions occur should not be used to blame employees. Hazardous practices and conditions can often be linked to employee training, equipment issues, work volume, time crunches, etc.

Source: SAIF Loss Control Approach

> The responsibility for the correction of unsafe work practices and conditions in the workplace lies with **YOU.**

Group exercise: Forming investigative teams

Team leader: _____

Team members: _____

What's the difference between an accident and an incident?

The two key conditions that must exist before an accident occurs are:

Unpreventable acts:

Only _____ percent of all workplace accidents are unpreventable.

Heart attacks and other events that could not have been known by the employer are examples of unpreventable events. Employers may try to place their injuries into this category. They justify these beliefs with such comments as: "He just lifted the box wrong and strained his back. What could we do?" This approach does not examine the root cause of the injury.

System failure:

Safety management system failures account for about _____ percent of all workplace accidents.

System failures refer to inadequate design or performance of safety programs that provide training, resources, enforcement, and supervision.

No-fault accident analysis:

Often accident investigators confuse accident investigation with criminal investigation, where blame is the end result. When this occurs, it obstructs the investigative process because witnesses may fear punishment. A no-fault analysis looks for deeper causes within the safety management system of an organization.

Laying the foundation

Accidents can be a time of confusion and high emotions. Having a written accident analysis plan that establishes what to do and when to do it can reduce decision-making time.

Include in your plan:

- Who should be notified of an accident
- Who is authorized to notify outside agencies (police, fire, etc.)
- Who is assigned to conduct investigations (include training they will need)
- Who receives and acts on investigation reports
- Expectation of time frames for conducting the investigation and follow-up actions such as correction of the unsafe condition or action

> Always make sure the scene is safe before you enter.

If you have to wait to secure the scene due to emergency responders providing aid, begin making initial observations.

It is important to act quickly and start taking pictures or video, as material evidence can be displaced while emergency responders tend to the injured. Also, witnesses' memories as well as details of what happened may change over time.

Finally, securing the scene also includes making the area safe until the root cause can be determined and safety controls are implemented.

Reporting to Oregon OSHA

All employers are required to report:

Within 8 hours:

All work-related fatalities and catastrophes

Within 24 hours:

Any work-related:

- Inpatient hospitalization
- Amputation or avulsion
- Loss of an eye

How to report an incident:
Call 800-922-2689 (toll-free)

or call your nearest Oregon OSHA office:

Bend
541-388-6066

Eugene
541-686-7562

Medford
541-776-6030

Pendleton
541-276-9175

Portland
503-229-5910

Salem
503-378-3274

When does the clock start? As soon as the employer knows one or more of the above conditions have occurred.

A catastrophe is defined as two or more fatalities or three or more employees hospitalized from the same event.

To better understand the Oregon OSHA reporting rules, take our online class.

> The object of every investigation is to prevent the incident from happening again. Therefore, an accident investigation is not about placing blame, but about finding facts.

GATHER INFORMATION	**Step 1**	Securing the scene
	Step 2	Collecting facts about what happened
ANALYZE THE FACTS	**Step 3**	Developing the sequence of events
	Step 4	Determining the cause
IMPLEMENT SOLUTIONS	**Step 5**	Recommending improvements
	Step 6	Writing the report

The Six-Step Process

Throughout this workbook we'll look into each of these six sections more closely, breaking down the process within each step.

The rules behind accident investigation can be found on Oregon OSHA's website at: osha.oregon.gov/OSHARules/div1/437-001-0760.pdf

Step 1 — Securing the Scene

Securing the scene is one of the most important aspects of accident investigation. It ensures others won't get injured and helps you investigate what caused the accident.

After all injured people have been cared for, it's time to secure the scene. Follow these steps:

- Cordon off the area
- Turn off or block equipment
- Notify affected people
- Survey the scene for:
  - Accident victims
  - Witnesses and their locations at the time
  - Objects broken, damaged, or struck
  - Tracks or skid marks from equipment
  - Time of day, lighting, and weather
  - Fluid spills/stains
  - Surface defects
  - Involved machines, vehicles, and equipment
  - Distractions
  - Safety devices used, not used, or failed
  - Position of equipment
  - Terrain (rocky, wet, slippery, frozen, cluttered, etc.)
  - Contaminated materials, debris

Documenting a scene should also involve taking note of anything to collect and submit for sampling.

Your primary goal in this step is to secure the accident scene to prevent further harm, then, secondarily, to safeguard the evidence.

When is it appropriate to begin the investigation?

What are effective methods to secure an accident scene?

Securing an accident scene is critically important, however, the victim is always the first consideration. If you have to wait to secure the scene until medical attention has been provided, you can still begin noting initial observations.

Step 2 — Collecting the Facts

We'll cover the methods for collecting and documenting:

- Direct cause of injury
- The result of the condition
- Hazardous conditions and unsafe employee/management behaviors (surface causes) that produced the accident
- System weaknesses (root causes) that produced surface causes for the accident

We'll also cover:

- Putting together your investigator's kit
- Obtaining initial statements
- Reviewing documents
- Capturing the scene

The investigator's kit

Time is of the essence when an accident occurs. Don't lose an opportunity to gather important facts because you don't have a pencil or camera at hand. Create an investigator's kit and have it ready.

Your kit may include:

- Camera
- Tape measure
- Clipboard, paper, pencil
- First aid kit
- Flashlight
- PPE appropriate to your business
- Report forms
- Plastic bags with ties
- Sketching/drawing template
- Warning/barricade tape
- A bag for storing these items
- Video equipment (optional)

Be sure to test your equipment on a regular basis and make sure to have extra batteries on hand. Your smartphone can be a handy tool for photos and video.

Documenting and gathering information

The most effective strategy is to document as much as possible, even if you question relevancy. It's easy to discard clues or leads if they prove not useful to the investigation.

While at the scene, note all your observations. With clipboard in hand, take notes involving all the senses. What do you see? What equipment, tools, materials, machines, and/or structures appear to be broken, damaged, struck or otherwise involved in the accident? Look for gouges, scratches, dents, and smears.

If vehicles are involved, check for tracks and skid marks. Look for irregularities on surfaces. Are there any fluid spills, stains, contaminated materials, or debris?

What about the environment? Were there any distractions or adverse conditions caused by weather?

Photographing the scene

Workshop attendees have commented that they often wish they had taken more pictures. Here are a few things to keep in mind as you visually document the scene:

- Start with distance shots, then move in closer.
- Take photos at different angles to show the relationship of objects and details.
- Take panoramic photos to help present the entire scene.
- For close pictures, place an item of known dimensions in the photo to show scale, such as a ruler or dollar bill.

Take notes for each photo. Identify the type of photo, date, time, location, subject, weather conditions, measurements, and importance of the photo. Your notes should be included in the appendix of the report along with your photos. Finally, identify the person taking the photo.

Optional: You can video the scene after providing help for injured persons.

Sketching the scene

Accident scene sketches are crucial because they complement the information in photos and indicate distances between the elements of the scene.

It's important to be as precise and inclusive as possible when making sketches. Sketching templates, for example, have several common figures available to trace.

Each sketch should include:

- Basic scene information: date, time, location, identity of objects, victims, etc.
- Positions: measurements that establish position of evidence, equipment, and where people were standing
- Location: where each photo was shot in relationship to the scene
- Direction: indicate north, south, east, west
- The words "not to scale"

Sketch in every element of the scene; be sure to:

- Make sketches large and clear
- Include measurements and establish precise, fixed, identifiable reference points
- Print legibly

- Tie measurements to a permanent point, such as a telephone pole or building
- Mark where people and equipment were located
- Include a key to explain any acronyms, symbols, or any special indicators, such as color

Taking video at the scene

If you have access to video, begin recording the scene as soon as emergency responders are providing care. Don't impede their work. The video will pick up details and conversations that can add valuable information to your investigation. Check with your supervisor to see what your company policy is regarding video recording.

Some important points to remember when video recording the scene include:

- Get the lay of the land by standing back and zooming into the scene.
- Capture the entire scene to establish location by panning the camera 360 degrees.
- Narrate what is being filmed: describe objects, size, direction, location, etc.
- If a vehicle was involved, record the direction of travel both coming and going.
- Discuss with company management the option of capturing witness descriptions on camera; staff may need to sign a waiver.
- Review the video when possible to note any information you may have missed.

Additional video tips:

- Be careful with the zoom function; upon later review, it can be difficult to tell what is being captured if you're too close.
- Shoot from a few different angles to capture different aspects of the scene.
- If you're going to be recording for long stretches, consider using a tripod to reduce shaking and fatigue.
- Transfer the digital video to your work computer for storage so it remains on file for further review.
- When recording, make sure the autofocus function has been turned on to increase the clarity of video.

Reviewing documents

You can obtain information by reviewing documents and records, including:

- Oregon OSHA Form 300 and DCBS Form 801
- Maintenance records – to determine the maintenance history of the tools, equipment or machinery involved in the accident – and manuals
- Training records for the past 36 months and refresher classes – to determine the quantity and quality of the training received by the victim and others
- Employee handbook and standard operating procedures (SOP) – to determine the formally established steps in the procedures
- Job hazard analysis (JHA) – to determine if any hazards had been identified
- Safety programs and safety policies, plans, rules – such as your emergency program – to determine their presence and adequacy, discipline procedures, and emergency medical plan
- Work schedules – to determine if the victim might have been fatigued or otherwise overworked

- Safety committee minutes – to determine the history of any discussion of related hazardous conditions, unsafe behaviors, quarterly inspection reports, and follow-up status
- Copies of accident investigations
- Personnel records of victim(s) and others involved
- Names of crew members and other witnesses along with the organizational chart, and names of others who do similar work
- Safety inspection results along with PPE requirements for the task

What type of helpful information might you find in safety committee meeting minutes?

Collecting facts

One of the biggest challenges facing an investigator is to determine what is relevant to what happened, how it happened, and why it happened.

Identifying the facts that answer these questions is the purpose of an effective investigation.

Once the scene has been secured, it's important to begin collecting the facts from as many sources as possible.

Be careful with preconceived notions of what happened. If you think you know what happened, you may subconsciously disregard important evidence.

List methods to document the accident scene and collect facts about what happened:

What documents will you be interested in reviewing and why?

> Once the emergency is being addressed, interviews should occur as soon as possible.

Initial statements

Get initial statements from the witnesses that include: an overview of what they saw, other people they suggest who could give you more information about materials, equipment used at the time of the accident, and anything that may have been moved or disturbed while tending to the accident victim. If time does not allow for initial statements, conduct a full investigative interview.

Interviewing overview

When is it best to interview and why?

Who should be interviewed and why?

Where should we conduct the interview?

Conducting interviews

The purpose of collecting facts is to gain an accurate and comprehensive picture of what happened by capturing all pertinent facts, interpretations, and opinions. Your job, as the interviewer, is to construct a story using the various accounts of the accident, and other evidence.

> Remember to keep the goal of the interview in mind: to determine the cause of the accident so that similar events will not occur.

When conducting your interviews, try to make your witnesses as comfortable as possible.

If you can, conduct your interviews in private, in an office or meeting room where you can talk comfortably and without interruptions. Also, keep in mind that, for some traumatic events, the scene can provide a distraction or emotional trigger. Because investigations can lead to policy changes and/or administrative action, don't promise confidentiality.

Approach the investigation with an open mind. If you have preconceived ideas about the individuals or the facts, it will be obvious to the interviewees. It's important to let the individual you're interviewing talk. Ask background information first (name, job, etc.). Then ask the witness to tell you what happened.

Do

- Be friendly
- Be understanding
- Ask one question at a time
- Remain open-minded
- Ask open-ended questions
- Schedule enough time

Don't:

- Ask leading questions
- Interrupt
- Put witnesses on the defensive
- Rush
- Promise confidentiality
- Make facial or verbal expressions of approval or disapproval

Who to Interview?

Compiling an interview list is important and may include:

- Witnesses: gather all of the details of what occurred from anyone present during any part of the accident
- The victim: determine which actions the victim took leading up to and including the accident
- Co-workers and others doing similar work, or those who work near the victim: establish if the safety procedures for the job were being followed when the accident occurred, and the normal practices for the task the victim was completing
- Direct supervisor: to understand the background information on the victim and to get procedural information about the task that was being performed

- Management: discuss policies and procedures specific to the victim's job to determine if all were followed
- Safety committee members: determine if there is a history of this safety issue
- Training department: gather information on the quantity and quality of training the victim and others have received for the task specific to the accident
- Personnel department: collect information on the victim's and others' work history, discipline, and appraisals
- Maintenance personnel: understand the background and maintenance on involved equipment/machinery
- Police: if they responded to the scene or filed a report
- The victim's spouse and family: they may have insight into the victim's state of mind or any issues on the day of the accident
- Anyone else with information related to the accident

Interviewing tips and points to remember

- Prepare your questions ahead of time
- Arrange for a quiet room with a table and chairs to foster a relaxed atmosphere
- Introduce yourself and state the purpose of the interview
- Ask clarifying questions
- No group interviews; only conduct one-on-one interviews
- Let the witness speak freely
- Do not argue; be considerate and calm
- Have witnesses verify the accuracy of your sketch and note their location at the time of the accident
- Accidents happen fast and witnesses may only recall a few key points
- Avoid yes or no questions by asking: who, what, where, when, why, and how questions
- If not recording the interview, take notes as carefully and casually as possible

- Get exact facts: time, sequence of events, and what was seen and heard
- Write down impressions and judgments immediately after the interview
- Recap and summarize main points of the interview
- Allow yourself time to take and review notes at the end of each interview

> Cooperation, not intimidation, is key to a successful interview.

Sample questions to consider:

- Who has provided you the training or instruction on this process/procedure?
- How was the job or process different on the day of the accident?
- How are workers held accountable for safety?
- How is information about safety and health shared with you?
- What effort does the company take to ensure employees are held accountable for working safely?
- Is there a history of prior accidents or near misses?

Exercise: Effective interviewing techniques

What should we say and why?

What should we not say and why?

What should we not do?

Team exercise: Get the facts

Purpose: Gain as much information as possible about an accident.

Interviewing witnesses is both a science and an art, and can make the difference between a failed or a successful accident investigation. This exercise will help you gain a greater awareness of the interviewing techniques that will help ensure your success as an investigator. Remember, you must communicate a message of cooperation, not intimidation.

Instructions: Your instructor will describe an accident. Your team and the instructor are located at the scene of the accident and your job now is to ask follow-up questions to gather information about the accident. Use the space below to list your questions or notes:

Step 3 — Developing the Sequence of Events

The next two steps help you organize and analyze the information gathered so that you may accurately determine the surface and root cause(s).

> An accident is the final event in an unplanned process.

In this step, we take the information gathered in Step 2, "Collecting the Facts," to determine the events prior to, during, and after the accident. You can then study each factor/action to determine unsafe conditions (things or circumstances that directly caused the accident) and unsafe actions.

These may include:

- Actions taken or not taken that contributed to the event
- System weaknesses, such as underlying inadequate or missing programs
- Plans, policies, processes, and procedures that contributed to the accident

The key is to take the information gathered and arrange it to accurately determine what initial conditions and/or actions turned the planned work process into an unsafe environment. There are many schools of thought about how to do that. Some point to a single cause, whereas others root out multiple causes. Whichever method is used at your workplace, be sure to identify the sequence of events, the causes that led up to the final accident, and the root cause(s) that created the unsafe condition/action.

Each event in the unplanned accident process identifies:

- **Actor** – an individual or object that directly influenced the flow of the sequence of events:
  - An actor initiates a change by performing or failing to perform an action.
  - An actor may participate in the process or merely observe the process.
- **Action** – something that is done by an actor. Failure to act should be thought of as an act in itself.
  - Actions may or may not be observable.
  - An action may describe something that is done or not done.

When describing events, first indicate the actor, then tell what the actor does. Remember, the actor is the doer, not the person or object having something done to them. For instance, take a look at the statement below:

Stacy unhooked the harness from the anchor.

In this example, Stacy is the actor and unhooking is the action. The harness and anchor, although objects, are not actors because they are not performing an action. Rather, something is being done to them.

Exercise: Circle the actor and action in each of these below:

1. Beverly slipped on a banana peel.
2. As Beverly lay on the floor, a brick fell on her head.
3. Sam discovered Beverly unconscious on the floor and immediately began initial first aid procedures.

Team exercise: What happened next?

Use the information gathered about the accident your instructor described in the interview exercise to construct a sequence of events.

Identify the events leading up to and including the injury event. Be sure you include only one actor and one action in each event. Decide where you want to start the sequence, then ask, "What happened next?"

Event 1: _____

_____

Event 2: _____

_____

Event 3: _____

_____

Event 4: _____

_____

Event 5: _____

_____

Event 6: _____

_____

Event 7: _____

_____

Event 8: _____

_____

Event 9: _____

_____

Developing the Sequence of Events (continued)

Here's an example of the sequence of events prepared for a serious injury investigation conducted by Oregon OSHA:

1. At approximately 9 a.m. Employee #1 was standing at the in-feed side of the table saw.
2. Employee #1 was cutting a piece of maple, measuring approximately 3/4" x 1/4" x 5' long, into three lengths.
3. Employee #1 had made two cuts and was making the final cut.
4. Employee #1 placed the board on the table saw and, with the 10-inch blade, ran the board through its entire length.
5. Employee #1 reached over to remove the off cut (waste).
6. Employee #1 lightly touched the off cut with his hand when the piece, 3/4" x 1/4" x approx. 5' long, hit the spinning blade.
7. The blade was spinning at 3,500 rpm and caused the piece to shoot toward employee #1.
8. The piece cut through Employee #1's leather belt and waistband and went into his abdomen to a depth of approximately 4 1/2 inches.
9. Employee #1 fell backward and, as he was falling to the floor, was able to pull the piece from his abdomen.
10. Employee #2, a cabinet maker in the next room, heard the saw and the cries of the victim.
11. Employee #2 ran to Employee #1.
12. After assessing Employee #1's wound, Employee #2 yelled for the shop supervisor, who was a short distance away.
13. The supervisor, after seeing the injury, called 911 and then attempted to make the victim comfortable until the ambulance arrived.
14. Paramedics stabilized the victim and transported him to Providence Hospital, where he underwent surgery for the injury.

This example is brief and there may be other related factors/causes that indirectly contributed to the accident. However, it does give you sufficient descriptive detail to paint a mental picture of what occurred immediately prior to and including the accident.

Note: Once the sequence of events are developed, you can then study each factor/action to determine:

- **Unsafe conditions:** things and situations that directly caused the accident
- **Unsafe actions:** actions taken or not taken that contributed to the accident
- **System weaknesses:** underlying inadequate or missing programs, plans, policies, processes, and procedures that contributed to the accident

We'll talk more about these in the next section, "Determining the Cause."

Step 4 — Determining the Cause

Most accidents have more than one cause. If you address as many of the causes as possible, you're more likely to prevent future accidents.

Behind every accident there are many contributing factors, causes, and sub-causes. These factors combine in a random fashion, causing accidents. We must find the fundamental root causes and remove them to prevent a recurrence.

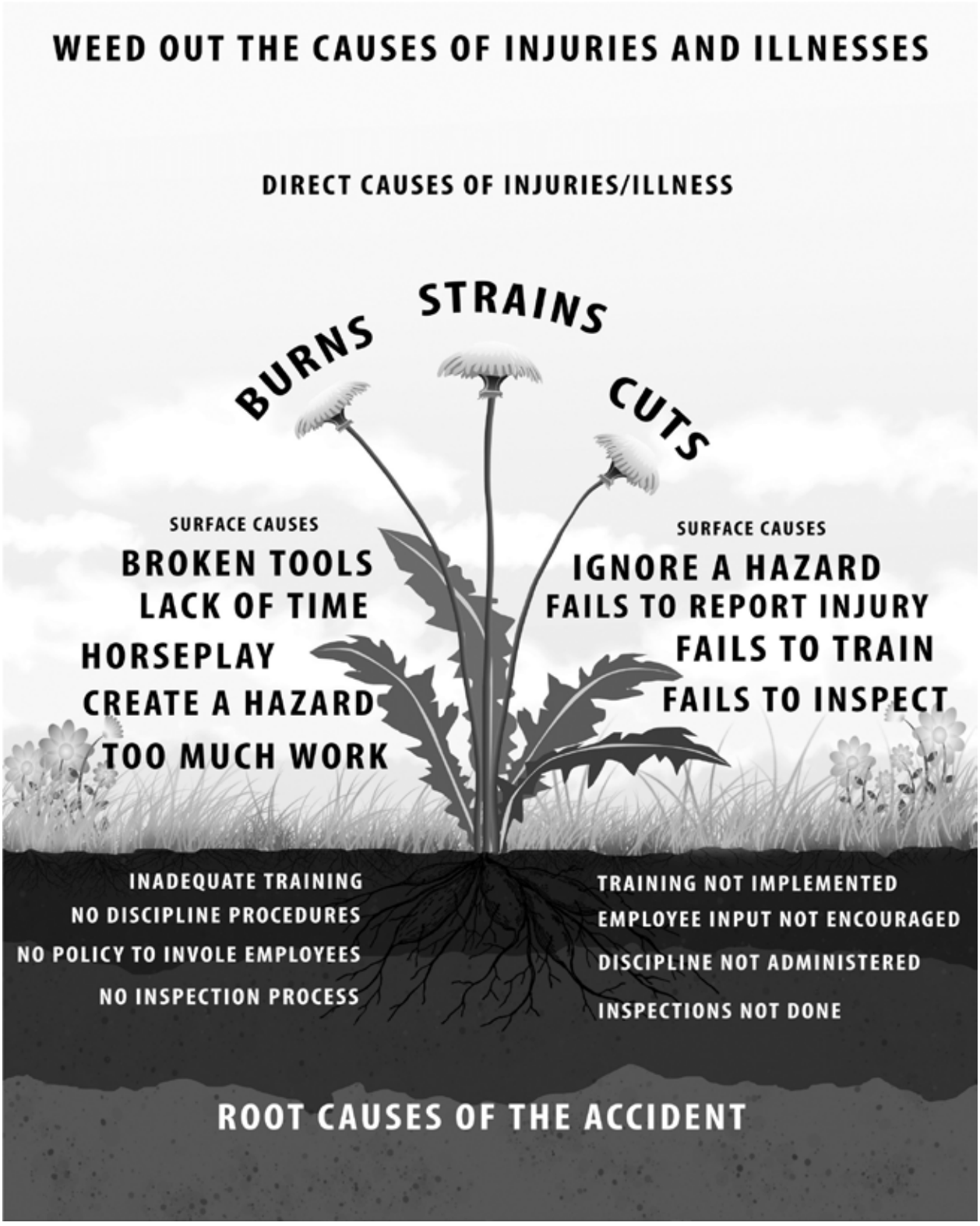
(Dan Petersen, "Safety Management: A Human Approach," ASSE, Pages 10-11)

Exercise: Determining the cause

What may be the cause(s) of the accident, according to the multiple causation theory?

What might be the solution to prevent the accident from recurring?

What are the strengths and weaknesses of this approach?


WEED OUT THE CAUSES OF INJURIES AND ILLNESSES
DIRECT CAUSES OF INJURIES/ILLNESS
BURNS
STRAINS
CUTS
SURFACE CAUSES
BROKEN TOOLS
LACK OF TIME
HORSEPLAY
CREATE A HAZARD
TOO MUCH WORK
SURFACE CAUSES
IGNORE A HAZARD
FAILS TO REPORT INJURY
FAILS TO TRAIN
FAILS TO INSPECT
INADEQUATE TRAINING
NO DISCIPLINE PROCEDURES
NO POLICY TO INVOLE EMPLOYEES
NO INSPECTION PROCESS
TRAINING NOT IMPLEMENTED
EMPLOYEE INPUT NOT ENCOURAGED
DISCIPLINE NOT ADMINISTERED
INSPECTIONS NOT DONE
ROOT CAUSES OF THE ACCIDENT

The Four Steps of Cause Analysis

1. Analyze the injury event to identify and describe the direct cause of injury.

Examples:

Event 1: Laceration to right forearm resulting from contact with rotating saw blade.

Event 2: Contusion from head striking against/impacting concrete floor.

2. Analyze events occurring just before the injury event to identify those conditions and behaviors that caused the injury (primary surface causes) for the accident.

Examples:

Event 1: An unguarded saw blade (condition or behavior?).

Event 2: Working at elevation without proper fall protection (condition or behavior?).

3. Analyze conditions and behaviors to determine other specific conditions and behaviors (contributing surface causes) that contributed to the accident.

Examples:

Event 1: Supervisor not performing weekly area safety inspection (condition or behavior?).

Event 2: Fall protection equipment missing (condition or behavior?).

4. Analyze each contributing condition and behavior to determine if weaknesses exist in carrying out safety policies, programs, plan, processes, procedures, and practices (inadequate implementation).

Examples:

Event 1: Safety inspections are being conducted inconsistently.

Event 2: Safety is not being adequately addressed during new employee orientation.

Exercise: Digging up the roots

1. Enter the direct cause of injury in the top field below from the previous exercise.
2. List one hazardous condition and one unsafe behavior from the sequence of events your group developed.
3. Determine contributing surface causes for the hazardous condition and unsafe behavior.
4. Determine implementation and design root causes for contributing surface causes.

Direct cause of injury:

Hazardous condition:

Unsafe behavior:

Contributing conditions:

Contributing conditions:

Design root causes:

Implementation root causes:

Step 5 — Recommending Improvements

Accident causes are addressed by recommending controls and safety system improvements. Controls eliminate or reduce the direct and surface cause(s) of an accident. Safety system improvements address the root cause, specifically, missing or inadequate safety system policies and procedures that contributed to the accident.

Types of controls: Engineering, management/administrative, PPE

Engineering controls

These are physical fixes that eliminate the unsafe condition. If feasible, OSHA recommends employers attempt to engineer the unsafe condition out to remove the hazard. The work environment and the job itself should be designed to eliminate hazards or reduce exposure to hazards.

Engineering controls are based on these broad principles:

1. If feasible, design/redesign the facility, equipment, or process to eliminate the hazard or make it less hazardous.
2. If removal is not feasible, enclose the hazard to prevent exposure in normal operations.

   This could be complete enclosure of moving parts of machinery; containment of toxic liquids or gases; glove box operations to enclose work with dangerous microorganisms or radioisotopes; containment of noise, heat, or pressure-producing processes.

3. Where possible, substitute with a different item.
4. If necessary, replace the item with a safer version.

Management/administrative controls

These can eliminate or reduce the frequency and duration of exposure to unsafe conditions by addressing workers' actions.

Any procedure that significantly limits daily exposure by control or manipulation of the work schedule or manner in which work is performed is considered a means of management control.

Management controls may result in a reduction of exposure through such methods as changing work habits, improving sanitation and hygiene practices, and/or making other changes in the way the employee performs the job, such as:

1. Completing housekeeping activities:
   - Removal of tripping, blocking, and slipping hazards
   - Removal of accumulated toxic dust on surfaces
   - Wetting down surfaces to keep toxic dust out of the air
2. Changing work procedures and practices. This is done by developing and implementing a job hazard analysis (JHA).
3. Changing work schedules to reduce employee exposure to a hazard. Methods include:
   - Lengthened rest breaks
   - Additional relief workers
   - Exercise breaks to vary body motions
   - Rotation of workers through different jobs

The use of PPE is not considered management control.

Exercise: Types of controls

Why are engineering controls considered superior to management controls?

Personal protective equipment (PPE) controls

PPE should be used in conjunction with the other controls; not on its own. When exposure to hazards cannot be engineered completely out of normal operations or maintenance work, and when safe work practices and administrative controls cannot provide sufficient additional protection from exposure, PPE is a control. Many tasks require the use of PPE in accordance with Safety Data Sheets (SDS) and Oregon OSHA requirements.

PPE includes:

- Face shields
- Steel-toed shoes
- Safety glasses
- Hard hats
- Knee Guards
- Leather aprons
- Respirators
- Hearing protection
- Safety goggles
- Harness
- Gloves
- Welding Shields
- Visibility vest
- Heat protection

Interim measures

When a hazard is recognized, the preferred correction or control cannot always be accomplished immediately. **However, in virtually all situations, interim measures can be taken to eliminate or reduce worker risk.** These can range from taping down wires that pose a tripping hazard to temporarily shutting down an operation.

There is no way to predict when a hazard will cause serious harm, and no justification to continue exposing workers unnecessarily to risk.

Surface causes are symptoms of a weak safety system. Missing or inadequate safety system components are often the root causes for workplace accidents. Every effort should be made to improve your safety management system, which may include:

- Improving your safety policy to clearly establish safety responsibility and accountability
- Including safety checklists in your work processes
- Implementing a safety inspection process that includes employees and management

Team exercise: Recommending corrective action

Use the hierarchy of control strategies as a guide to determine corrective actions that will eliminate or reduce one of the hazardous conditions or unsafe behaviors identified on Page 27.

Recommendations for immediate actions to correct the surface causes:

Improvement strategies to fix the system:

Make improvements to policies, programs, plans, processes, and procedures in one or more of the following elements of the safety and health management system:

1. Managementcommitment
2. Accountability
3. Employee involvement
4. Hazard identification/control
5. Incident/accident analysis
6. Training
7. Evaluation

Making system improvements might include some of the following:

- Writing a comprehensive safety and health plan including the above elements.
- Improving a safety policy to clearly establish responsibility and accountability.
- Changing the training plan so that the use of checklists are taught.
- Revising the purchasing policy to include safety consideration as well as cost.
- Changing the safety inspection process to include all supervisors and employees.

Team exercise: Fix the system ... not the blame

Develop and write a recommendation to improve one or more policies, plans, programs, processes, procedures, and practices identified as design weaknesses. This is to make sure the case study accident doesn't reoccur.

Recommendations:

Recommending corrective action and fixing the system will help you develop and propose solutions that correct hazards, as well as design long-lasting system improvements.

Step 6 — Writing the Report

As you write your report, remember your primary objective as an investigator is to uncover the causes that contributed to the accident; the accident report isn't about placing blame. Your challenge is to be as objective and accurate as possible. Your findings and how you present them will shape perceptions and the corrective actions taken by management. We'll now look further into what the report includes and delve into each section. The Report is a stand-alone document and should address all points.

What's in the report? Seven points:

- **Background:** The introduction of the report, it contains information about the victim, the company, the accident time, date, location, and a description of the specific work performed at the scene.
- **Description of the accident:** A narrative that tells the events leading up to and during the accident, as well as the action taken afterward. It's important for the narrative to paint a clear picture that answers the what, where, why, and how of the accident.
- **Findings:** These summarize what the investigator found based on collected evidence and describe the unsafe conditions, unsafe actions, and system weaknesses. This also includes a list of violations or hazardous work practices and/or conditions. The findings are proven by evidence and documented in the report. This can include a description of documents (or the lack thereof), statements, interviews, photos, drawings, etc. The findings should also describe:
  - direct cause(s) – Unsafe conditions and/or actions that exist or occurred immediately before the injury
  - surface cause(s) – Conditions and/or actions that were in place before the injury accident, such as work practices
  - root cause(s) – System weaknesses that produced the surface causes for the accident
- **Recommendations:** Describes corrective actions and safety improvements and their costs, as well as ways to get rid of or reduce both surface and root causes. Consider both short-term and long-term corrections.
- **Summary/Conclusion:** This is a brief review of causes of the accident and recommendations, along with a cost and benefits analysis of the corrective action(s).
- **Review and follow-up actions:** This describes action taken and/or repairs, and lists the people responsible for carrying out each of the corrective actions and safety system improvements by name or job title.
- **Attachments:** Contains photos taken throughout the investigation, videos, sketches, notes, and relevant documents.

> The primary reason accident investigations fail to help eliminate similar accidents is that some report forms address only correcting surface causes; root causes are ignored. Let's look at one format for ensuring an effective report.

Sample Report

Accident investigation form (example 1)

Use this form to help you investigate workplace accidents or incidents. Note: this form is for use within your company. It is not intended to replace DCBS Form 801: *Worker's and Employer's Report of Occupational Injury or Disease*.

Company: _____ Report no.: _____

Operation: _____ Investigator _____

Name of accident victim: _____ Victim's job title: _____

How long has accident victim been with this company? _____ How long on this job? _____

(Attach this information for each additional person injured.)

Witnesses:

Name: _____ Name: _____

Name: _____ Name: _____

Name: _____ Name: _____

When did the accident occur? Date: _____ Time: _____ Shift: _____

Where did the accident occur? Department: _____ Location: _____

What happened? (Describe sequence of events and extent of injury. Attach separate page if necessary.)

Has a similar accident ever occurred? ☐ Yes ☐ No If yes, when? _____

What caused the accident?

List all causes and contributing factors, which might include lack of supervision, inadequate training, poor equipment maintenance, and inadequate policy.

- _____
- _____
- _____
- _____
- _____

Accident investigation form (example 1)

List each corrective action to be taken. Who will do it and when will it be done?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

Attach photographs, sketches of the scene, or other relevant information.

Prepared by: Title: Date:

The report is an open document until all actions are complete.

For an accident investigation to be effective, management must consider the findings and develop a plan for corrective action and system improvements. Periodic evaluation of this plan is critical to maintaining an effective program.

Appendix: Reference materials

Workers' Compensation Claims in Oregon, 2021		
Event or exposure leading to injury	**Number of claims resolved**	**Average cost of claim**
1. Traumatic injuries, disorders	23,382	$19,670
2. Infectious, parasitic diseases	1,731	$6,780
3. Injury, illness combination	837	$82,200
4. Exposure to disease	655	$5,450
5. Systemic diseases	627	$23,720

These claims, provided by the Oregon Workers' Compensation Division, can help when you present your recommendations to management by showing the cost of the accident you are recommending eliminating or controlling.

For more Oregon claims details, go to:

https://www.oregon.gov/dcbs/reports/protection/Pages/wc-benefits.aspx – click on "Average claim costs tables (440-4863)" and select the year you would like to view. From there, you can access:

Table 3: Average temporary disability days and claim costs paid for resolved accepted disabling claims by accident event or exposure.

Table 4: Average temporary disability days and claim costs paid for resolved accepted disabling claims by nature of injury or disease.

Summary of accident investigation rules

437-001-0704(3) Reporting an Occupational Fatality, Catastrophe, or Accident.

3) You must report fatalities and catastrophes to Oregon OSHA only in person or by telephone within eight hours of occurrence or employer knowledge (reported to you or any of your agents) of a fatality or catastrophe:

(a) Fatalities. You must report all work-related fatalities. You must report all fatalities caused by a heart attack at work. Report a fatality only if death occurs within 30 days of the incident.

Note: Work-related fatalities include those caused by a motor vehicle accident that happens during the employee's work shift.

(b) Catastrophe. A catastrophe is an incident in which two or more employees are fatally injured, or three or more employees are admitted to a hospital or an equivalent medical facility (for example, a clinic) as a result of the same incident.

437-001-0053 Preserving Physical Evidence at the Scene of an Accident.

(1) Employers, their representatives, or others shall not disturb the scene of a fatality or catastrophe other than to conduct the rescue of injured persons or mitigate an imminent danger until authorized by the Administrator (or designee), or directed by a recognized law enforcement agency.

(2) In order to preserve physical evidence at the scene of a fatality or catastrophe, the Administrator is authorized to limit the number of employer representatives or employee representatives accompanying the compliance officer during the documentation of the scene. The employer representative and employee representative must be provided an opportunity to document the scene prior to disturbance or removal of physical evidence.

(3) If an employer, their representative or others disturb the scene of a fatality or catastrophe other than to conduct the rescue of injured person(s) or mitigate an imminent danger before authorized by the Administrator or directed by a recognized law enforcement agency, a minimum penalty may be assessed.

437-001-0170 Determination of Penalty – Failure to Report an Occupational Fatality, Catastrophe, or Accident.

Failure to report an occupational fatality, catastrophe, or accident: a penalty shall be assessed.

OAR 437-001-0765 (8) Accident investigation.

The safety committee must evaluate all accident and incident investigations and make recommendations for ways to prevent similar events from occurring.

OAR 437-001-0760 (3) Investigations of Injuries.

(3) Investigations of Injuries.

(a) Each employer must investigate or cause to be investigated every lost time injury that workers suffer in connection with their employment, to determine the means that should be taken to prevent recurrence. The employer must promptly install any safeguard or take any corrective measure indicated or found advisable.

(b) At the request of authorized Department representatives, it is the duty of employers, their superintendents, supervisors, and employees to furnish all pertinent evidence and names of known witnesses to an accident and to give general assistance in producing complete information which might be used in preventing a recurrence of such accident.

At the request of the Department, persons having direct authority must preserve and mark for identification, materials, tools, or equipment necessary to the proper investigation of an accident.

When to stop analyzing the incident

Excerpt - CPL 2.113 - Fatality Inspection Procedures

H. FATALITY/CATASTROPHE INVESTIGATIONS

2. Fatalities and catastrophes shall be thoroughly investigated to attempt to determine the cause of the events, whether a violation of OSHA safety or health standards related to the accident has occurred and any effect the standard violation has had on the occurrence of the accident.

J. POTENTIAL CRIMINAL INVESTIGATIONS

1. Section 17(e) of the Act provides criminal penalties for an employer who is convicted of having willfully violated an OSHA standard, rule or order when the violation caused the death of an employee.
2. Early investigations the Area Director shall make an initial determination whether there is potential for a criminal violation, based on the following criteria.

a. A fatality has occurred.

b. There is evidence that an OSHA standard has been violated and that the violation contributed to the death.

c. There is reason to believe that the employer was aware of the requirement of the standard and knew it was in violation of the standard.

Instances when Oregon OSHA investigators found the employer violated safety standards related to employee training and emergency evacuation procedures:

Some maintenance electricians in the melting plant were not adequately trained in the proper safety adjustment procedures for the electronic flow sensors installed in the cooling water system. The employer had installed electronic flow sensors approximately 18 months earlier to replace mechanical switches with a history of malfunctions. Ten of the plant's 13 licensed electricians had received training on the new sensors, but the remaining three – including the individual who happened to respond when the furnace shut down the night of the explosion – had not. Proposed penalty: $5,000.

Employees working in the melting department who are responsible for setting up or operating the furnaces were not adequately trained for safe operation of the furnaces. While the employer's own safety and health procedures require that all employees newly assigned to a department receive very detailed safety training relating to the department and their specific duties, none of the melting plant personnel at the time of the explosion had ever received the training. Proposed penalty: $5,000.

Exits were not maintained free of obstructions or impediments to full instant use in the event of an emergency. When the explosion occurred, employees used designated evacuation routes to leave the facility. A gate in a cyclone fence that blocked one of those routes was locked, so that two employees had to climb the fence. Proposed penalty: $1,500.

Example accident analysis plan

1.0 General Policy

_____

Business/Company Name

considers employees to be our most valued asset and as such we will ensure that all incident and accidents are analyzed to correct the hazardous conditions, unsafe practices, and improve related system weaknesses that produced them. This incident/accident analysis plan has been developed to ensure our policy is effectively implemented.

_____

Business/Company Name

will ensure this plan is communicated, maintained, and updated as appropriate.

2.0 Incident/Accident Reporting

2.1 Background. We can't analyze incidents and accidents if they are not reported. A common reason they go unreported is that the incident/accident analysis process is perceived to be a search for the "guilty party" rather than a search for the facts. We agree with current research that indicates most accidents are ultimately caused by missing or inadequate system weaknesses. Management will assume responsibility for improving these system weaknesses. When we handle incident/accident analysis as a search for facts, employees are more likely to work together to report incidents/accidents and to correct deficiencies, be they procedural, training, human error, managerial, or other. Consequently, our policy is to analyze accidents to primarily determine how we can fix the system. We will not investigate accidents to determine liability. A "no-fault" incident/accident analysis policy will help ensure we improve all aspects of our manufacturing process.

2.2 Policy. All employees will immediately report any unusual or out of the ordinary condition or behavior at any level of the organization that has or could cause an injury or illness of any kind.

Supervisors will recognize employees immediately when an employee reports an injury or a hazard that could cause serious physical harm or fatality, or could result in production downtime. (See recognition program procedures).

2.3 Statement. Our business will ensure effective reporting procedures are developed so we can quickly eliminate or reduce hazardous conditions, unsafe practices, and system weaknesses.

3.0 Preplanning

Effective incident/accident analysis starts before the event occurs by establishing a well thought-out incident/accident analysis process. Preplanning is crucial to ensure accurate information is obtained before it

is lost over the time following the incident/accident as a result of cleanup efforts or possible blurring of people's recollections.

4.0 Incident/Accident Analysis

4.1 All supervisors are assigned the responsibility for analyzing incidents in their departments. All supervisors will be familiar with this plan and properly trained in analysis procedures.

4.2 Each department supervisor will immediately analyze all incidents that might have resulted in serious injury or fatality. Supervisors will analyze incidents that might have resulted in minor injury or property damage within four hours from notification.

4.3 The supervisor will complete and submit a written incident/minor injury report through management levels. If within the capability/authority of the supervisor, corrective actions will begin immediately to eliminate or reduce the hazardous condition or unsafe work practice the might result in injury or illness.

5.0 Management Responsibilities

5.1 When our company has an incident/accident such as a fire, release, or explosion emergency, management will:

1. Provide medical and other safety/health help to personnel;
2. Bring the incident under control, and
3. Investigate the incident effectively to preserve information and evidence.

5.2 To preserve relevant information the analyst will:

1. Secure or barricade the scene;
2. Immediately collect transient information;
3. Interview personnel.

6.0 Incident/Accident Analysis Team

6.1 Background: It is important to establish incident/accident analysis teams before an event occurs so the team can quickly move into action if needed.

The makeup of the team is another important factor affecting the quality of the analysis. We will appoint competent employees who are trained, and have the knowledge and skills necessary to conduct an effective analysis. Doing so will show management's commitment to the process.

6.2 Incident/Accident Analysis Team Makeup

Although team membership may vary according to the type of incident, a typical team analyzing an incident/accident may include:

1. A third-line or higher supervisor from the section where the event occurred;
2. Personnel from an area not involved in the incident;
3. An engineering and/or maintenance supervisor;
4. The safety supervisor;
5. A first-line supervisor from the affected area;
6. Occupational health/environmental personnel;
7. Appropriate wage personnel (i.e., operators, mechanics, technicians); and,
8. Research and/or technical personnel.

Team Member	Department	Shift	Phone

6.3 The incident/accident analysis team leader

The incident/accident analysis team leader will:

1. Control the scope of team activities by identifying which lines of analysis should be pursued, referred to another group for study, or deferred;
2. Call and preside over meetings;
3. Assign tasks and establish timetables;
4. Ensure that no potentially useful data source is overlooked; and,
5. Keep site management advised of the progress of the analysis process.

7.0 Determining the facts

A thorough search for the facts is an important step in incident/accident analysis. During the fact-finding phase of the process, team members will:

1. Visit the scene before the physical evidence is disturbed
2. Sample unknown spills, vapors, residues, etc., noting conditions that may have affected the sample
3. Prepare visual aids, such as photographs, field sketches, missile maps, and other graphical representations to provide data for the analysis
4. Obtain on-the-spot information from eyewitnesses, if possible. Soon after, interview those directly involved, and any others whose input might be useful. The interviews should be conducted privately and individually.
5. Observe key mechanical equipment as it is disassembled. Include: as-built drawings, operating logs, recorder charts, previous reports, procedures, equipment manuals, oral instruction, change of design records, design data, records indicating the previous training and performance of the employees involved, computer simulations, laboratory tests, etc.
6. Determine which incident-related items should be preserved. When a preliminary analysis reveals that an item may have failed to operate correctly, was damaged, etc., arrangements should be made to either preserve the item or carefully document any subsequent repairs or modifications.
7. Document the sources of information contained in the incident report. This will be valuable should it subsequently be determined that further study of the incident or potential incident is necessary.

8.0 Determining the Cause

It is critical to establish the root cause(s) of an incident/accident so that effective recommendations are made to correct the hazardous conditions and unsafe work practices, and make system improvements to prevent the incident from recurring.

The incident/accident analysis team will use appropriate methods to sort out the facts, inferences, and judgments they assemble. Even when the cause of an incident appears obvious, the investigation team will still conduct a formal analysis to make sure any oversight or a premature/erroneous judgment is not made.

Below is one method to develop cause and effect relationships.

1. Develop the chronology (sequence) of events occurring before, during, and after the incident. The focus of the chronology should be solely on what happened and what actions were taken. List alternatives when the status cannot be definitely established because of missing or contradictory information.
2. List conditions or circumstances that deviated from normal, no matter how insignificant they may seem.
3. List all hypotheses of the causes of the incident based on these deviations.

9.0 Making Recommendations — Corrective Actions and System Improvements

Usually, making recommendations for corrective actions and system improvements follow in a rather straightforward manner from the cause(s) that were determined. A recommendation for corrective action and system improvement will contain three parts:

1. The recommendation itself, which describes the actions and improvements to be taken to prevent a recurrence of the incident.
2. The name of the person(s) or position(s) responsible for accomplishing actions and improvements.
3. The correction date(s).

10.0 Follow-up System: Assignment

Print full name

_____

will develop and implement a system to track open recommendations and document actions taken to close out those recommendations. Such a system will include a periodic status report to site management.

11.0 Incident After Action — Review and Approval

Appropriate operating, maintenance, and other personnel will review all incident/accident analysis reports. Personnel at other facilities will also review the report to preclude a similar occurrence of the incident.

Plan reviewed by:

_____ Date: _____

_____ Date: _____

_____ Date: _____

_____ Date: _____

Plan approved by:

_____ Date: _____

Sample incident/accident

Essential items:

1. Camera
2. Tape measure—preferably 100 feet
3. Clipboard and blank paper
4. Graph paper
5. Straight-edge ruler. Can be used as a scale reference in photos.
6. Pens and pencils
7. Accident investigation forms
8. Flashlight

Additional helpful items:

1. Accident investigator's checklist
2. Sturdy gloves
3. High-visibility plastic tape to mark off area
4. First aid kit
5. Audio or video recorder
6. ID tags
7. Tape, bags, specimen containers to secure items
8. Compass
9. Pain stick or chalk to mark the scene
10. Protractor to sketch the scene
11. Tarp
12. Investigator's template
13. PPE appropriate to your business

Sketching techniques

1. Make sketches large, on 8"x10" paper
2. Make sketches clear and use labels
3. Include measurements
4. Print legibly; all print should be on the same plane
5. Indicate direction (e.g., north, south, east, or west)
6. Measure from a permanent point (e.g., a telephone pole)
7. Make copies of the sketch to use when interviewing people; they can indicate where they were and what they were doing when the accident happened.

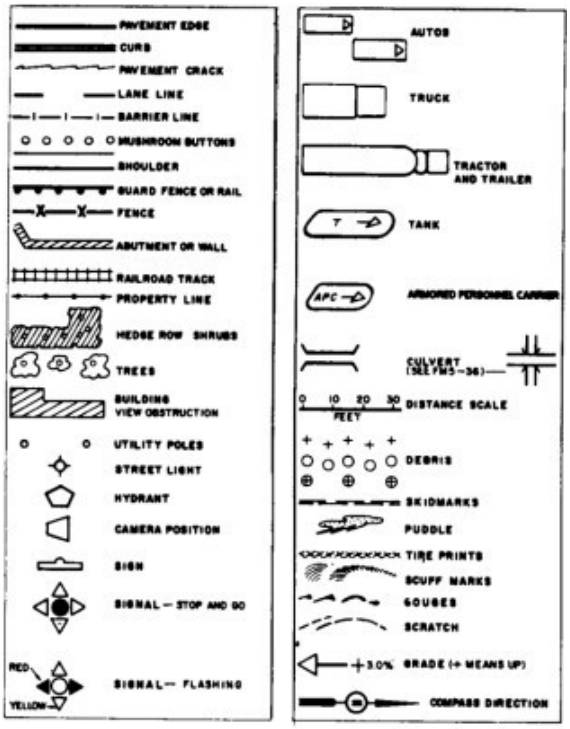
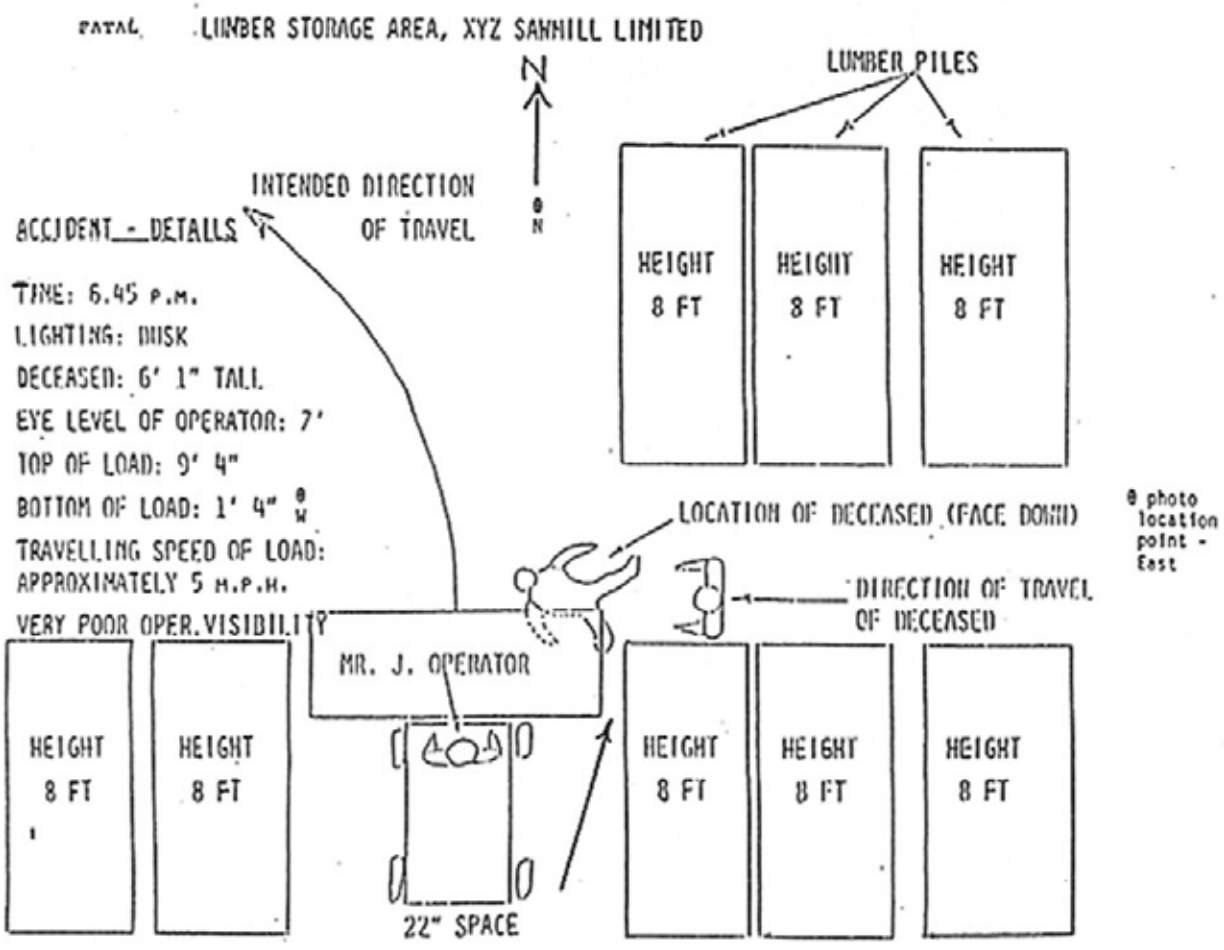


Diagram Symbols for Sketches



Forms of energy that describe the direct cause of injury

1. Mechanical – Components that cut, crush, bend, shear, pinch, wrap, pull, and puncture as a result of rotating, transverse, or reciprocating motion.

Example: A box crusher causing injury.

2. Electrical –
Low-voltage hazards = below 40 volts
High-voltage hazards = above 440 volts

Example: Being electrocuted by an ungrounded circuit.

3. Chemical – Corrosive, toxic, flammable, or reactive/involving a release of energy ranging from "not violent" to "capable of detonation." Toxics include poisonous plants, dangerous animals, biting insects, and disease-carrying bacteria.

Example: Ingesting a poisonous pesticide due to residue from spaying.

4. Kinetic (impact) – Collision of objects; including impact of a moving object against a stationary object, falling objects, flying objects, and flying particles.

Example: A pallet falling and striking an employee as it hits the ground.

5. Potential (stored) – Sudden unexpected movement due to gravity, pressure, tension, or compression.

Example: A pressurized tank valve exploding and hitting someone.

6. Thermal – Extreme or excessive heat, extreme cold, sources of flame ignition, flame propagation, and heat-related explosions.

Example: An oil fryer spits hot oil on an employee's bare skin, causing burns.

7. Acoustic – Excessive noise and vibration.

Example: Loud machinery causing hearing damage over time.

8. Radiant – Relatively short wavelength energy forms within the electromagnetic spectrum, including radar, infrared, ultraviolet, X-ray, and ionizing radiation.

Example: An X-ray technician doesn't wear PPE and is overexposed to radiant energy.

9. Atmospheric/geological/oceanographic – Atmospheric weather circumstances such as wind and storm conditions; geologic structure characteristics such as underground pressure; and oceanographic currents, wave action, etc.

Example: A large wave catches a boat worker unaware and flings the person across the boat.

Adapted from Nelson and Associates, hazardcontrol.com

Accident types and examples

Struck by: A person is forcefully struck by an object. The force of contact is provided by the object. Example: A pedestrian is struck by a moving vehicle.

Struck against: A person forcefully strikes an object. The person provides the force.

Example: A person strikes a leg on a protruding beam.

Contact by: Contact by a substance or material that by its very nature is harmful and causes injury. Example: A person is contacted by steam escaping from a pipe.

Contact with: A person comes in contact with a harmful material. The person initiates the contact. Example: A person touches the hot surface of a boiler.

Caught on: A person or part of their clothing or equipment is caught on an object that is either moving or stationary. This may cause the person to lose their balance and fall, be pulled into a machine, or suffer some other harm.

Example: A person snags a sleeve on the end of a handrail.

Caught in: A person is trapped, stuck, or otherwise caught in an opening or enclosure.

Example: A person's foot is caught in a hole in the floor.

Caught between: A person is crushed, pinched or otherwise caught between either a moving object and stationary object, or between two moving objects.

Example: A person's finger is caught between a door and its casing.

Fall to surface: A person slips or trips and falls to the surface on which they are standing or walking on.

Example: A person trips on debris in the walkway and falls.

Fall to below: A person slips or trips and falls to a surface level below the one they were walking or standing on.

Example: a person trips on a stairway and falls to the floor below.

Exertion: Someone overexerts or strains oneself while doing a job.

Examples: A person is lifting heavy objects and repeatedly flexes the wrist and twists the torso to place materials on a table. Interaction with objects, materials, etc., is involved.

Bodily reaction: Caused solely from stress imposed by free movement of the body or assumption of a strained or unnatural body position. A leading source of injury.

Example: A person bends or twists to reach a valve and strains their back.

Exposure: Over time, someone is exposed to harmful conditions.

Example: A person is exposed to levels of noise in excess of 90 decibels for eight hours.

Oregon OSHA Services

Oregon OSHA offers a wide variety of safety and health services to employers and employees:

Appeals

- **503-947-7426; 800-922-2689; admin.web@dcbs.oregon.gov**
- Provides the opportunity for employers to hold informal meetings with Oregon OSHA on concerns about workplace safety and health.
- Discusses Oregon OSHA's requirements and clarifies workplace safety or health violations.
- Discusses abatement dates and negotiates settlement agreements to resolve disputed citations.

Conferences

- **503-378-3272; 888-292-5247, Option 1; oregon.conferences@dcbs.oregon.gov**
- Co-hosts conferences throughout Oregon that enable employees and employers to learn and share ideas with local and nationally recognized safety and health professionals.

Consultative services

- **503-378-3272; 800-922-2689; consult.web@dcbs.oregon.gov**
- Offers no-cost, on-site safety and health assistance to help Oregon employers recognize and correct workplace safety and health problems.
- Provides consultations in the areas of safety, industrial hygiene, ergonomics, occupational safety and health programs, assistance to new businesses, the Safety and Health Achievement Recognition Program (SHARP), and the Voluntary Protection Program (VPP).

Enforcement

- **503-378-3272; 800-922-2689; enforce.web@dcbs.oregon.gov**
- Offers pre-job conferences for mobile employers in industries such as logging and construction.
- Inspects places of employment for occupational safety and health hazards and investigates workplace complaints and accidents.
- Provides abatement assistance to employers who have received citations and provides compliance and technical assistance by phone.

Public education

- **503-947-7443; 888-292-5247, Option 2; ed.web@dcbs.oregon.gov**
- Provides workshops and materials covering management of basic safety and health programs, safety committees, accident investigation, technical topics, and job safety analysis.

Standards and technical resources

- **503-378-3272; 800-922-2689; tech.web@dcbs.oregon.gov**
- Develops, interprets, and gives technical advice on Oregon OSHA's safety and health rules.
- Publishes safe-practices guides, pamphlets, and other materials for employers and employees.
- Manages the Oregon OSHA Resource Center, which offers safety videos, books, periodicals, and research assistance for employers and employees.

Need more information? Call your nearest Oregon OSHA office.

Salem Central Office
350 Winter St. NE
Salem, OR 97301-3882

Phone: 503-378-3272
Toll-free: 800-922-2689
Fax: 503-947-7461
en Español: 800-843-8086
Website: osha.oregon.gov

Bend

Red Oaks Square
1230 NE Third St., Suite A-115
Bend, OR 97701-4374
541-388-6066
Consultation: 541-388-6068

Eugene
1500 Valley River Drive, Suite 150
Eugene, OR 97401-4643
541-686-7562
Consultation: 541-686-7913

Medford
1840 Barnett Road, Suite D
Medford, OR 97504-8293
541-776-6030
Consultation: 541-776-6016

Pendleton
200 SE Hailey Ave.
Pendleton, OR 97801-3072
541-276-9175
Consultation: 541-276-2353

Portland
Durham Plaza
16760 SW Upper Boones
Ferry Road, Suite 200
Tigard, OR 97224-7696
503-229-5910
Consultation: 503-229-6193

Salem
1340 Tandem Ave. NE, Suite 160
Salem, OR 97301-8080
503-378-3274
Consultation: 503-373-7819

Salem Central Office

350 Winter St. NE
Salem, OR 97301-3882

Phone: 503-378-3272
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en Español: 800-843-8086

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