

Accident Analysis



Ohio

Bureau of Workers'
Compensation

Division of Safety and Hygiene Training Center

ACCIDENT ANALYSIS

Table of Contents

<u>Tab</u>	<u>Page</u>
Objectives	iii
Agenda	iv
BWC Office Locations	vi
Downloading Materials	vii
Activity Plan	viii
What is Accident Analysis?	
Definitions	2
Cost Analysis	5
Heinrich Incident Ratios	6
OSHA Standards	8
Written Accident Analysis Program	11
Causal Factors	27
“A Guide to Accident Investigation”	29
Incident Causes	40
Accident Investigation Root causes	43
Accident Analysis Steps	45
Accident Analysis Kit	49
Evidence Log	51
Incident Scene Priorities	52
Do’s & Don’ts	54
Sample Interview Memorandum	57
Fishbone Diagram	61
Accident Tree	63
Report Writing	69

Forms	79
OSHA 300	85
OSHA 301	88
FROI	91
Power Press Injury Report	95
BWC Accident Analysis Report	96
More Effective Accident Control	101
First-Aid Report	102
School Accident Report	103
Accident Investigation Report	105
Incident Analysis Form	106
Accident Investigation Checklist	109
Employee Incident Report	111
Resources	115
Resources Available	116
“Accident Investigations: How to Ask Why”	118
“Near-hit” reporting	122
Train the Trainer	127
How Adults Learn Best	131
Training Methods	134
Art of Asking Questions	144
Helpful Hints for Excellent Presentations	148
Etiquette Among Multiple Instructors	149
Speaking Before a Group	152
Word Scramble	153
Accident Analysis Quiz	154
Case Studies	157
Bricklayer’s Accident Report	171
Glossary	175

Accident Analysis

Objectives

You will learn:

- Establish an accident analysis written program;
- Recognize the five primary casual factors of accidents;
- Identify the steps in the accident analysis process;
- Utilize data analysis tools and methods;
- Conduct an accident analysis, using basic information and tools.

What are your objectives/expectations?

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Accident Analysis

Agenda

8:30 - 11:30

- Introduction
 - Objectives
 - Action Plan
 - What is an accident?
- Establishing Written Accident Analysis Program
 - Purpose
 - Definitions
 - Responsibilities
 - Program activities
- Steps of Accident Analysis
 - Information gathering
 - Analysis & Conclusions
- Casual Factors
 - Management / Process Failure
 - Environment
 - Material
 - Task
 - Human Factor
 - Action Plan
 - What is an accident?

11:30 - 12:30

- Lunch

12:30 - 4:30

- Steps of Accident Analysis (continued)
 - Recommendations
 - Written report
- Proactive Utilization of Data
 - Gather information
 - Evaluate data for trends
 - Draw conclusions
 - Make recommendations
 - Take action
- End Class
 - Review content
 - Q & A
 - Complete evaluations sheet
 - Dismiss

BWC Office Locations

**Ohio Center for
Occupational Safety &
Health (OCOSH)**
13430 Yarmouth Drive
Pickerington, OH 43147
1-800-OHIO BWC
(Follow the prompts)
(614) 995-8622
Safety@bwc.state.oh.us

Cambridge
61501 Southgate
Parkway
Cambridge, OH 43725
(740) 435-4210

Canton
400 Third St. S.E.
Canton, OH 44701-
4801
(330) 471-0397

Cleveland
615 W. Superior Ave.
6th Floor
Cleveland, OH 44113
(216) 787-3060

Columbus
30 W. Spring St.
11th Floor
Columbus, OH 43215
(614) 752-4538

Dayton
3401 Park Center Drive
Dayton, OH 45414
(800)-862-7768
(937) 264-5230

Garfield Heights
4800 E. 131st St.
Garfield Heights, OH
44105
(216) 584-0115

Governor's Hill
8650 Governor's Hill Dr.
4th Floor
Cincinnati, OH 45249
(513) 583-4403

Hamilton
One Renaissance
Center
345 High St.
Hamilton, OH 45011
(513) 785-4510

Lima
2025 E. Fourth St.
Lima, OH 45804
(419) 227-4116

Logan
1225 W. Hunter St.
Logan, OH 43138
(740) 385-9848

Mansfield
240 Tappan Drive N.
Mansfield, OH 44906
(419) 529-4528

Portsmouth
1005 Fourth St.
Portsmouth, OH 45662
(740) 353-3419

Toledo
1 Government Center
12th Floor
Toledo, OH 43604
(419) 245-2474

Youngstown
242 Federal Plaza W.
Suite 200
Youngstown, OH 44503
(330) 797-5010

Instructions for Downloading Materials from BWC's Learning Center

1. Go to: www.bwclearningcenter.com
2. Log in using your username and password
 - a. If you have forgotten your username and password call 1-800-OHIOBWC
3. Click the "Team Center" building
4. Click "Team Rooms"
5. Type "AA" in the keyword field and click search
6. Click the "Accident Analysis" team room which should be the first team room listed
7. Click "Content" listed in the Team Room Tools
8. Click on the document that you wish to view/download
 - a. Websites might be available to click for easy access to online resources
 - b. Instructor(s) PowerPoint(s) that may not be in manual will be available to download
9. Log off when finished

Action Plan

	Task	Other people involved	Target Deadline
□			
□			
□			
□			
□			
□			
□			
□			

WHAT IS ACCIDENT ANALYSIS?

The basics



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



What two key conditions must exist before an accident occurs?

H_____ and E_____



What causes the most accidents?

- **Unpreventable acts.** Only _____ % of all workplace accidents are thought to be unpreventable. Heart attacks and other events that could not have been known by the employer are examples of unpreventable acts. Employers may try to place most of 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?" Unfortunately, they are excuses for not looking into the "root cause" of the injury.
- **System failure.** Safety management system failures account for at least _____ % 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

If someone deliberately sets out to produce loss or injury, that is called a crime, not an accident. Yet many accident investigations get confused with criminal investigations... Whenever the investigative procedures are used to place blame, an adversarial relationship is inevitable. The investigator wants to find out what actually happened while those involved are trying to be sure they are not going to be punished for their actions. The result is an inadequate investigation. (Kingsley Hendrick, Ludwig Benner, Investigating Accidents with STEP, p 42. Marcel Dekker, Inc. 1987.)

Definitions

Words:	Accident Corrective Action Factor Hazard	Incident Risk Root Cause Safety
---------------	---	--

<p>The control and elimination of recognized workplace hazards to attain an acceptable level of risk.</p> <p>Answer:</p>	<p>An existing or potential condition in the workplace that, by itself or by interacting with other variables, can result in deaths, injuries, property damage, and other losses.</p> <p>Answer:</p>
<p>A measure of the probability and severity of adverse effects.</p> <p>Answer:</p>	<p>How to determine which conditions or events, if eliminated, will prevent the recurrence of an accident.</p> <p>Answer:</p>
<p>An unplanned event that interrupts the completion of an activity, and that may include injury, illness, or property damage.</p> <p>Answer:</p>	<p>Any unplanned event that either results in damage to property, equipment, or the environment, or has the potential to result in such consequences.</p> <p>Answer:</p>
<p>Any behavior, condition, act, or negligence without which the accident would not have happened, can be simultaneous or sequential.</p> <p>Answer:</p>	<p>The problem solving tool to identify all potential causes which could explain why the problem occurred.</p> <p>Answer:</p>

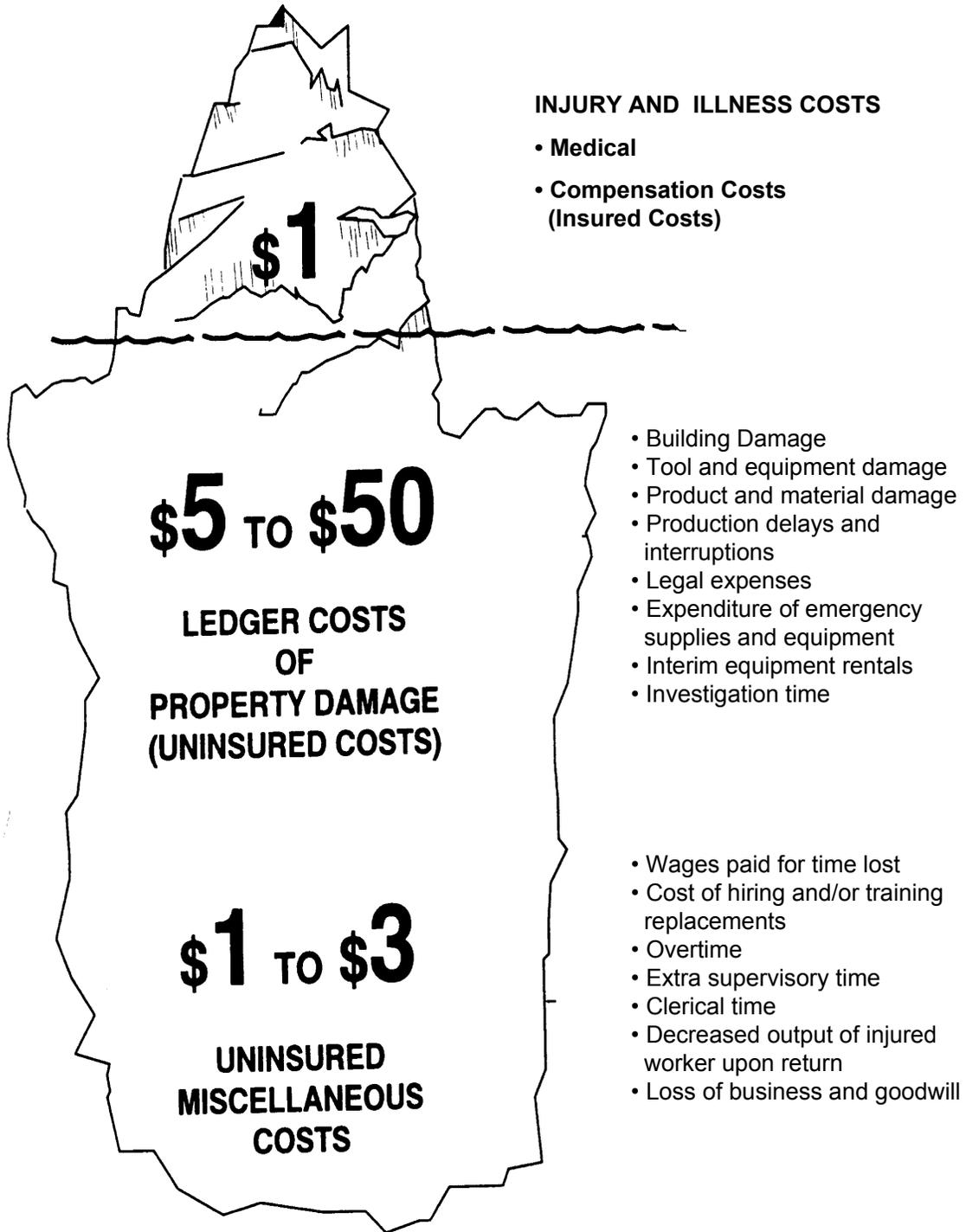


Turn & Talk

Why do we do Accident analysis?

- ✓ _____
- ✓ _____
- ✓ _____
- ✓ _____
- ✓ _____
- ✓ _____
- ✓ _____

ACCIDENT COST ICEBERG



COST ANALYSIS

Company Name: _____

Locations: _____

Supervisor: _____

DIRECT COST

Compensation paid	\$
Medical expense	\$
Reserves	\$
Total Direct Cost	\$

INDIRECT COST

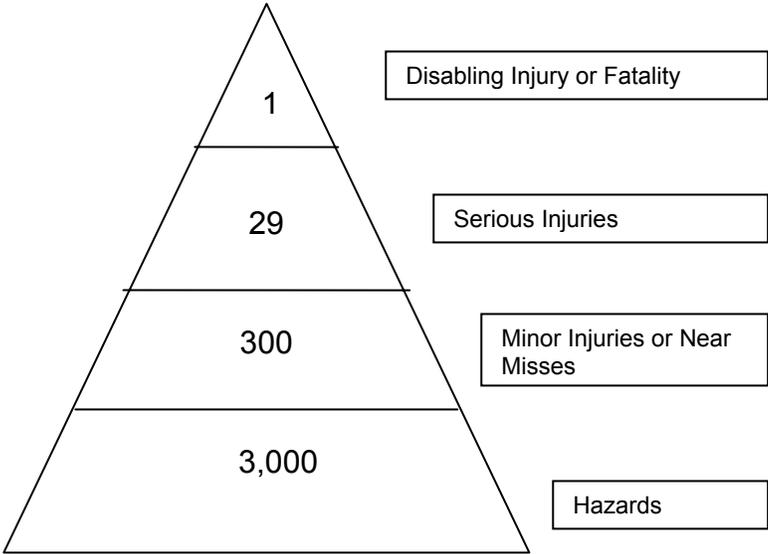
TOPIC	TIME-LOSS	WAGES /EXPENSES
Injured Worker		
Injured Worker Claim Number (if applicable)		
Other Workers:		
A.		
B.		
C.		
First-Aid		
Supervision:		
A. Analyzing accident or incident		
B. Claims management		
Overtime		
Temporary Worker Replacement		
Production Loss:		
Machinery		
Equipment		
Tools		
Product		
Project Delay		
Outsourcing Contracting		
Other		
Total Indirect Cost		

Sources:

1. Dan Petersen: Techniques of Safety Management: A System Approach
2. Sandy Newman: BWC Division of Safety and Hygiene Occupational Safety and Health Research

CONSEQUENCES OF NOT INVESTIGATING ACCIDENTS & INCIDENTS

HEINRICH'S INCIDENT RATIOS



Notes:

BENEFITS OF HAVING AN ACCIDENT ANALYSIS PROGRAM

Directions: We have examined the consequences of not doing an accident analysis. Now let's look at the benefits of having an accident analysis program. The left column below lists some benefits of an accident analysis program. In the middle column, write how that benefit impacts the organization. In the right column, write how it impacts employees.

Benefit	Impact on Organization	Impact on Employees
Accident prevention		
Identification of training needs		
Identification of what's right		
Improved operations		
Increase in employee morale		
Increase in employee involvement		



Safety and Health Topics Accident Investigation

Thousands of accidents occur throughout the United States every day. The failure of people, equipment, supplies, or surroundings to behave or react as expected causes most of them. Accident investigations determine how and why these failures occur. By using the information gained through an investigation, a similar, or perhaps more disastrous, accident may be prevented. It is important to conduct accident investigations with prevention in mind.

The following questions link to information relevant to accident investigation in the workplace.



[What OSHA standards apply?](#)

[Standards](#) | [Preambles to Final Rules](#) | [Directives](#) | [Standard Interpretations](#)



[How do you conduct accident investigations?](#)



[What is the role of accident investigation in a safety program?](#)

[Example Programs](#) | [General Resources](#)



[Where can I find summarized accident statistics?](#)



[What additional information is available?](#)

[Safety and Health Topics](#)

[Accident Investigation](#)

- ▀ [OSHA Standards](#)
- ▀ [Conducting Accident Investigations](#)
- ▀ [Safety Program](#)
- ▀ [Accident Statistics](#)
- ▀ [Additional Information](#)
- ▀ [Credits](#)

Content Reviewed
10/30/2006

[▲ Back to Top](#)

www.osha.gov

www.dol.gov

[Contact Us](#) | [Freedom of Information Act](#) | [Customer Survey](#)
[Privacy and Security Statement](#) | [Disclaimers](#)

Occupational Safety & Health Administration
200 Constitution Avenue, NW
Washington, DC 20210



Accident Investigation OSHA Standards

[Safety and Health Topics](#)

[Accident Investigation](#)

- [OSHA Standards](#)
- [Conducting Accident Investigations](#)
- [Safety Program](#)
- [Accident Statistics](#)
- [Additional Information](#)
- [Credits](#)

Content Reviewed
10/30/2006

There are currently no specific standards for accident investigation. However, this page highlights OSHA standards, preambles to final rules (background to final rules), directives (instructions for compliance officers), and standard interpretations (official letters of interpretation of the standards) related to accident investigation.

[Section 5\(a\)\(1\)](#) of the OSH Act, often referred to as the General Duty Clause, requires employers to "furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees".

[Section 5\(a\)\(2\)](#) requires employers to "comply with occupational safety and health standards promulgated under this Act".

Note: Twenty-four states, Puerto Rico and the Virgin Islands have [OSHA-approved State Plans](#) and have adopted their own standards and enforcement policies. For the most part, these States adopt standards that are identical to Federal OSHA. However, some States have adopted different standards applicable to this industry or may have different enforcement policies.

Highlighted Standards

- [1910 Subpart H](#), Hazardous materials
 - [1910.119](#), Process safety management of highly hazardous chemicals [[related topic page](#)]

Preambles to Final Rules

- [Reporting of Fatality or Multiple Hospitalization Incidents](#) (1994)
 - [III. Summary and Explanation of the Proposed Rule](#)
- [Logging Operations](#) (1994)
 - [IV. Major Issues](#)
- [Process Safety Management of Highly Hazardous Chemicals; Explosives and Blasting Agents](#) (1992)
 - [III. Summary and Explanation of the Final Rule](#)
- Search all available [preambles to final rules](#).

Directives

- [Consultation Policies and Procedures Manual](#). CSP 02-00-002, (2009, January 18).
- [Field Operations Manual \(FOM\)](#). CPL 02-00-148, (2009, January 9). Provides guidance to OSHA inspectors for conducting accident investigations.
- [Voluntary Protection Programs \(VPP\) Policies and Procedures Manual](#). CSP 03-01-003, (2008, April 18).
- Search all available [directives](#).

Standard Interpretations

- [Process Safety Management of Highly Hazardous Chemicals](#). Fact Sheet (Program Highlights) 93-45, (1993). Discusses the requirement for employers to initiate an investigation as soon as possible (but no later than 48 hours after) incidents which did result or could reasonably have resulted in catastrophic releases of covered chemicals.
- Search all available [standard interpretations](#).

 [Back to Top](#)

www.osha.gov

www.dol.gov

[Contact Us](#) | [Freedom of Information Act](#) | [Customer Survey](#)
[Privacy and Security Statement](#) | [Disclaimers](#)

Occupational Safety & Health Administration
200 Constitution Avenue, NW
Washington, DC 20210

Page last updated: 01/15/2009

WRITTEN PROGRAM

Accident Analysis Policy Development

1. What work-related incidents are to be reported?
 - a. Near Misses
 - b. Property Damage
 - c. Injuries – First Aid, Minor Injuries, Traumatic (who reports the latter?)
 - d. Repetitive Motion Injuries (Musculoskeletal Disorders)
2. How are these incidents reported?
 - a. To whom? Supervisor
 - b. How? Documents used-FROI and Accident Investigation form
 - c. When? Within 24 hours
3. Who will conduct the investigation?
 - a. Supervisors are directly responsible for all occurrences and condition in their department
 - b. Upper management can also offer support and contributions as needed
4. What is to be investigated?
 - a. What follow up Action is necessary as a preventative measure?
 - b. Anything that requires a 300 Log entry
 - c. Any incidents that could have potentially resulted in serious injury
 - d. Any incidents that could have potentially resulted in serious injuries
5. Hazard Prevention Action?
 - a. What follow up Action is necessary as a preventative measure?
 - b. Who will be the responsible party for implementing the preventative measure?
 - c. What is the deadline for the preventive measure to be implemented?
 - d. To whom will the responsible party report once this is finished?
6. How is the Policy/Procedure enforced?
 - a. Front Line Supervisory coaching and/or multi-stage corrective action process
7. Communication
 - a. How will this new policy be communicated to all employees? Through monthly supervisor meeting and paycheck inserts
8. Who is privy to all the information collected from the investigation?
 - a. Claimant/injured parties
 - b. Supervisors, H.R., Management
9. What will be done with all the data collected?
 - a. Communicate back to the employees and supervisors at least in the monthly supervisor meetings

ACCIDENT ANALYSIS

Written Program

Purpose

The purpose of this program is to define and document the accident analysis process at *(name of company)*.

This program defines the responsibilities of all company management and supervisors in analyzing the causes of accidents and implementing appropriate corrective actions to prevent similar situations from recurring.

Definitions

Accident: Any unwanted happening, movement, or release of energy.

Accident Analysis : The process of determining the causes of accidents and implementing corrective actions to prevent recurrence.

Hazard: Anything that presents a danger to employees or property.

Hazard Control: Any method used to reduce or eliminate a hazard, such as:

- Engineering controls
- Administrative controls
- Personal Protective Equipment
- Housekeeping
- Safe work practices
- Training

Incident: Any accident that caused or could have caused an injury, illness, or damage to equipment.

OSHA No. 300: Log and Summary of Occupational Injuries and Illnesses, on which fatalities, regardless of the time between the injury and death, or the length of the illness; or lost workday cases; nonfatal cases without lost workdays which result in transfer to another job or termination of employment, or require medical treatment; or involve loss of consciousness, restriction of work or motion. Also used to summarize the log at the end of the year to satisfy employer posting requirements.

Responsibilities

The Program Administrator is (*person's name/title*).

This person is responsible for:

- Administering the program and issuing written material that support it;
- Coordinating all activities related to hazard control, insurance companies (e.g. workers' compensation), and OSHA, state and local regulatory compliance;
- Maintaining OSHA recordkeeping on the OSHA 300 Log and Summary of Occupational Injuries and Illnesses;
- Reporting all serious accidents that result in fatalities or hospitalization of three (3) or more employees to the local OSHA area office within eight (8) hours of occurrence;
- Analyzing accident records to identify program deficiencies;
- Scheduling managers, supervisors and, as appropriate, safety committee members for training;
- Maintaining training recordkeeping; and
- Posting the Summary of the OSHA 300 during the month of February.

Supervisors and Managers:

These people are responsible for:

- Conducting accident analyses within their departments and providing appropriate corrective actions; and
- Initiating accident analyses immediately upon notification and completing them within twenty-four (24) hours after learning of its occurrence.

Program Activities

General

- All employees will report all incidents immediately to their respective supervisor and/or manager.
- All accidents that result in employee injuries, property damage or the probability thereof will be analyzed .
- A company analysis report will be completed within twenty-four (24) hours of an accident.
- The accident analysis will be completed according to the accident analysis procedure included in the "Attachments" section.

- Department management will initiate corrective action according to the corrective action plan on the company accident report. Corrective actions that cannot be initiated immediately will be documented in a written report that indicates what will be done, when, and by whom. A copy of the corrective action report will be forwarded to the Safety Program Administrator within five (5) days of the incident.
- Any accident that results in sending employees to outside medical treatment will be reported to company management and the Safety Program Administrator immediately.

Safety Committee

- Will review accident analyses and make recommendations for corrections.
- Will review incident and near-miss analyses and, when necessary, submit suggestions to prevent future accidents.

Training

- All supervisors and managers will be trained and knowledgeable in accident analyses and the safety and health hazards to which employees under their immediate direction and control may be exposed.

Recordkeeping

- All accident reports generated shall be kept a minimum of six (6) years.
- All OSHA 300 Logs shall be retained a minimum of six (6) years.
- It's recommended that records be kept indefinitely to maintain the information necessary to provide an adequate history of conditions that have been responsible for accidents and what corrective actions have been taken.
- The Summary of the company OSHA 300 will be posted on the employee bulletin board for the month of February.
- All records shall be kept documenting training for each employee, including employee name or other identifier, training date(s), type(s) of training and training providers.

Attachments

Recordkeeping

- Accident Analysis Report Form
- Accident Analysis Training Record
- OSHA Form No. 300

Recordkeeping

Accident Recordkeeping

Keep accurate records of all accident analysis activities, including:

- OSHA Form No. 300, Log and Summary of Occupational Injuries and Illnesses
(page 1-5 of this manual);
- First reports of injuries and illnesses;
- Workers' compensation forms; and
- Accident Investigation report forms (tab 5 of this manual).

Training Recordkeeping

A written certification record of all accident analysis training activities must be maintained. It should include:

- The name (or other identity) of the person trained.
- The Social Security Number of the person trained.
- The date(s) of training.
- The signature of the person conducting the training or of the employer.

Sample Accident Investigation Policy

1. Background

An accident and illness investigation is a systemic procedure designed to uncover the underlying root causes of accidents and develop workable corrective actions in an effort to prevent a recurrence. An accident is an unplanned event which can result in, or has the potential of causing employee injury, illness, or fatality, product or property damage, explosion, fire, chemical spills or releases, or business interruptions. An event which does not result in injury, illness or property damage (such as a “close call” or “near miss”) is still considered an incident that should be investigated as if it were an accident.

2. Responsibilities

- a. All employees are responsible for reporting accidents, injuries, and near-miss accidents to their supervisor immediately.
- b. _____ will be responsible for the overall implementation of the Accident Investigation Program.
- c. The following person(s) or job classifications will be responsible for:
 - Incident/Accident Reporting: _____
 - Incident/Accident Investigation: _____
 - Follow Up of Corrective Actions: _____
 - Training: _____
 - Program Assessment: _____
 - Recordkeeping: _____

3. Incident/Accident Investigation Procedures:

- a. Employees will report all incidents/accidents to their supervisor immediately.
- b. All incidents/accidents, including first-aid cases, near misses and property damage incidents, will be investigated. The magnitude of the investigation will vary according to the severity or potential severity of the incident/accident.
- c. Upon notification of an incident/accident, an initial Incident/Accident Investigation Report will be completed and submitted by the end of the work shift. Enter the initial incident

report into PowerSuite. At that point a Incident Investigation Report form can be downloaded from PowerSuite.

Initial Incident/Accident Investigation Steps

Reported Incident/Accident → Render Aid → Secure Scene →
Abate Immediate Hazards(s) → Complete Initial
Incident/Accident Investigation → Submit Form

- d. The Initial Incident/Accident Investigation Report will be reviewed to determine the approach to the incident/accident investigation and allocation of appropriate personnel or teams.
- e. An investigation team will be assembled to complete the incident/accident investigation. The team will consist of management, health and safety representatives, and employees. The Operation Leader will participate in or review all recordable and lost-time injury investigations.
- f. The investigation will determine the root cause(s) of the incident, and identify corrective action(s). The investigation will be started as soon as possible and not more than 24 hours later.
- g. The completed Incident/Accident Investigation Report will document and root cause and feasible corrective actions to prevent the reoccurrence of the incident/accident.

Incident/Accident Investigation Steps

Review Incident/Accident Investigation Report →
Conduct Reporting Requirements (as applicable) →
Complete Incident/Accident Investigation Report
(Gather Facts, Determine Root Cause, and Establish and Implement
Corrective Actions) → Notify Employees → Update Procedures → Follow Up

- h. Corrective Actions should be entered into the Audit Tracking System in PowerSuite. This can be done directly from the Incident Investigation portion of the case record. These actions can then be implemented in a timely fashion with defined dates and responsible parties for completion and follow up. Corrective actions will be tracked to closure.
- i. At the completion of the investigation, all forms reports will be filed in:

- j. Incident/accident investigation results will be communicated through the following means:

- k. A follow-up inspection will be conducted to evaluate the effectiveness of the corrective actions. Modifications in corrective actions will be made, as necessary, to effectively control the hazard.
- l. Findings of investigation and follow-up review of corrective action will be used to revise job safety analyses (JSAs), ergonomic hazard identification, operating procedures, and training programs, as appropriate.

4. Training

- a. Investigating team members will receive training the conduct of investigations. This will be accomplished by:

- b. Investigation teams will be trained in root cause analysis. This will be accomplished by:

- c. Employees will participate in investigation training. This will be accomplished by:

- d. Training will be evaluated and updated at least annually or more frequently as deemed necessary by the program assessment.

5. Program Assessment

- a. The Accident Investigation Program will be evaluated on an annual basis by the health and safety team and/or management.
- b. _____ will be used for the evaluations.
- c. Subsequent program updates will be made consistent with the assessment findings.

6. Reporting and Recordkeeping

- a. Incidents/accidents that result in fatalities, serious injuries, or significant concern will be reported to the required government regulatory authorities.
- b. Accident Investigation Program recordkeeping is maintained:
 - Incident/Accident Investigation Reports: _____
 - Corrective Action Plans: _____
 - Training: _____

“Fix The System” Incident/Accident Analysis Plan

1.0 General Policy

_____ 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.

_____ 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 that 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, the all 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 report immediately to their supervisor, 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 _____ will ensure effective reporting procedures are developed so that 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 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 (near hits) that might have resulted in serious injury or fatality. Supervisors will analyze incidents that might have resulted in minor injury or property damage within hours from notification.

4.3 The supervisor will complete and submit a written incident/minor injury report through management levels to the plant superintendent. 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 that the team can quickly move into action if called on. 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 which may have affected the sample; (Be sure you sample using proper safety and health procedures)
3. Prepare visual aids, such as photographs, field sketches, missile maps, and other graphical representations with the objective of providing data for the analysis.
4. Obtain on-the-spot information from eyewitnesses, if possible. Interview with those directly involved and others whose input might be useful should be scheduled soon thereafter. The interviews should be conducted privately and individually; so that the comments of one witness will not influence the responses of others.
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.
7. 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.
8. Carefully 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 which occurred 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 which 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 Recommending 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

To make sure follow-up and closure of open recommendations, _____ 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 Communicating Results

11.1 To prevent recurring incidents we will take two additional steps:

1. Document findings; and
2. Review the results of the analysis with appropriate personnel.

11.2 Incident documentation will address the following topics:

1. Description of the incident (date, time, location, etc.);
2. Facts determined during the analysis (including chronology as appropriate);
3. Statement of causes; and
4. Recommendations for corrective and preventive action (including who is responsible and correction date).

12.0 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 _____
Plan approved by _____ Date _____

Company Name
ACCIDENT REPORTING POLICY

Accident Injury Reporting

1.0 Purpose

To establish procedures to report accidents and injuries for evaluation, treatment if needed, and record keeping.

2.0 Policy

_____ is responsible for investigating any reported accident or injury related to (company name).. Accident prevention efforts include initiation of corrective actions.

3.0 Procedure

All accidents and injuries are to be reported and treated, if needed, as outlined in the following categories:

3.1 Employees

3.1.1 Employees must report with in 24 hours to their immediate supervisor any on-duty and job related injury. The supervisor is responsible for initiating an Accident/Injury Report for each reported employee accident/injury. This report is available through _____.

Then the report shall be forwarded to

_____.

It is required that employees report all injuries with in 24 hours.

3.1.2 When the injured employee requires evaluation or treatment, they report to _____. If after regular hours, or if the injury is serious and requires immediate care, report directly to the nearest emergency room.

3.1.3 In cases of serious injury when an immediate corrective action is deemed necessary, the _____ should be notified at _____.

3.2 Other Persons

3.2.1 It is required that all persons: Visitors, Customers, Contract Employees, Off-Duty Employees and any other persons injured report the injuries promptly to an (company name) employee. Assistance is offered to those who become injured.

3.2.2 When a non-employee person reports an accident or injury, _____ should be notified immediately at _____.

3.2.2.1 If you think you need medical attention, you should go to the nearest emergency room. We will gladly call for an ambulance if you think you need one.

3.2.2.2 If you have any questions concerning your accident, please contact _____.

4.0 Financial Responsibility Statement

(company name) does not assume financial responsibility for cost of medical treatment for any injury/illness when determined not caused by (company name)., or for an employee's injury/illness determined not job-related by either time of occurrence or location on/off the premises.

5.0 Responsibility of All Personnel

The employees and their supervisors are responsible for the prompt reporting of accidents or injuries in their area. They will initiate prompt corrective measures for the prevention of accidents.

6.0 Enforcement

Employees who do not comply with the Accident Reporting Policy will be subject to discipline in the following manner: _____

I have read and understand the contents of the accident reporting policy and will abide by the Company's policy.

Employee Signature: _____

Date: _____

Manager's Signature _____

Date: _____

INJURIES WITHOUT AN INCIDENT

QUESTIONS TO ASK

Did the pain develop gradually or did you feel it all of a sudden?

Sudden

1. Exactly what were you doing before you felt the pain?
2. Have you ever done this before? How often?
3. When you felt the pain, were you doing it the way you usually do? If not, what was different?
4. Did anything unexpected, unusual, or abnormal happen?
Explain.
5. When you felt the pain, did you tell anyone? Who and when?
6. If nothing unusual happened, how do you think the injury occurred? How would you explain why you were injured?

Gradual

1. When did you first notice the pain?
2. What had you been doing that caused you to feel the pain?
3. How long or how many times did you do this?
4. Have you ever done this before? How often?
5. Were you doing it the same way as you usually do? If not what, what was the difference?
6. Except for the pain that developed, do you recall anything unusual, unexpected, or abnormal that happened?
7. If nothing unusual happen, what do you think caused the pain? How would you explain why you were injured?

CAUSAL FACTORS

Causal Factors

(1) Task

- Ergonomics
- Safe work procedures
- Condition changes
 - ◆ Process
 - ◆ Materials
 - ◆ Workers
- Appropriate tools/materials
- Safety devices (including lockout)

(2) Material

- Equipment failure
- Machinery design/guarding
- Hazardous substances
- Substandard material

(3) Environment

- Weather conditions
- Housekeeping
- Temperature
- Noise levels
- Lighting
- Air contaminants
- Personal Protective Equipment

(4) Human Factor (Personal)

- Level of experience
- Level of training
- Physical capability
- Health
- Fatigue
- Stress

(5) Management / Process Failure

- Visible active senior management support for safety
- Safety policies
- Enforcement of safety policies
- Adequate supervision
- Knowledge of hazards
- Hazard corrective action
- Preventive maintenance
- Regular audits

“A Guide to Accident Investigation,” published by the Canadian Centre for Occupational Health and Safety (CCOHS) on its web site, www.ccohs.ca, appears here in its entirety.

The document is reprinted by permission of CCOHS, 250 Main Street East, Hamilton, Ontario L8N 1H6 Canada.

Accident Investigation

What is an accident and why should it be investigated?

Who should do the accident investigating?

Should the immediate supervisor be on the team?

Why look for the "root cause"?

What are the steps involved in investigating an accident?

What should be looked at as the cause of an accident?

How are the facts collected?

What should I know when making the analysis and conclusions?

Why should recommendations be made?

What should be done if the investigation reveals "human error"?

How should follow-up be handled?

What is an accident and why should it be investigated?

The term "accident" can be defined as an unplanned event that interrupts the completion of an activity, and that may (or may not) include injury or property damage.

An incident usually refers to an unexpected event that did not cause injury or damage this time but had the potential. "Near miss" or "dangerous occurrence" are also terms for an event that could have caused harm but did not.

Reasons to investigate a workplace accident include:

- most importantly, to find out the cause of accidents and to prevent similar accidents in the future
- to fulfill any legal requirements
- to determine the cost of an accident
- to determine compliance with applicable safety regulations
- to process workers' compensation claims

Incidents that involve no injury or property damage should still be investigated to determine the hazards that should be corrected. The same principles apply to a quick inquiry of a minor incident and to the more formal investigation of a serious event.

Please note: The term incident is used in some situations and jurisdictions to cover both an "accident" and "incident". It is argued that the word "accident" implies that the event was related to fate or chance. When the root cause is determined, it is usually found that many events were predictable and could have been prevented if the right actions were taken -- making the event not one of fate or chance (thus, the word incident is used). For simplicity, we will use the term accident to mean all of the above events.

The information that follows is intended to be a general guide for supervisors or joint occupational health and safety committee members. When accidents are investigated, the emphasis should be concentrated on finding the root cause of the accident rather than the investigation procedure itself so you can prevent it from happening again. The purpose is to find facts that can lead to actions, not to find fault. Always look for deeper causes. Do not simply record the steps of the event.

Who should do the accident investigating?

Ideally, an investigation would be conducted by someone experienced in accident causation, experienced in investigative techniques, fully knowledgeable of the work processes, procedures, persons, and industrial relations environment of a particular situation.

Some jurisdictions provide guidance such as requiring that it must be conducted jointly, with both management and labour represented, or that the investigators must be knowledgeable about the work processes involved.

In most cases, the supervisor should help investigate the event. Other members of the team can include:

- employees with knowledge of the work
- safety officer
- health and safety committee
- union representative, if applicable
- employees with experience in investigations
- "outside" expert
- representative from local government

Should the immediate supervisor be on the team?

The advantage is that this person is likely to know most about the work and persons involved and the current conditions. Furthermore, the supervisor can usually take immediate remedial action. The counter argument is that there may be an attempt to gloss over the supervisors shortcomings in the accident. This situation should not arise if the accident is investigated by a team of people, and if the worker representative(s) and the members review all accident investigation reports thoroughly.

Why look for the "root cause"?

An investigator who believes that accidents are caused by unsafe conditions will likely try to uncover conditions as causes. On the other hand, one who believes they are caused by unsafe acts will attempt to find the human errors that are causes. Therefore, it is necessary to examine some underlying factors in a chain of events that ends in an accident.

The important point is that even in the most seemingly straightforward accidents, **seldom, if ever, is there only a single cause**. For example, an "investigation" which concludes that an accident was due to worker carelessness, and goes no further, fails to seek answers to several important questions such as:

- Was the worker distracted? If yes, why was the worker distracted?
- Was a safe work procedure being followed? If not, why not?
- Were safety devices in order? If not, why not?
- Was the worker trained? If not, why not?

An inquiry that answers these and related questions will probably reveal conditions that are more open to correction than attempts to prevent "carelessness".

What are the steps involved in investigating an accident?

The accident investigation process involves the following steps:

- Report the accident occurrence to a designated person within the organization
- Provide first aid and medical care to injured person(s) and prevent further injuries or damage
- Investigate the accident
- Identify the causes
- Report the findings
- Develop a plan for corrective action
- Implement the plan
- Evaluate the effectiveness of the corrective action
- Make changes for continuous improvement

As little time as possible should be lost between the moment of an accident or near miss and the beginning of the investigation. In this way, one is most likely to be able to observe the conditions as they were at the time, prevent disturbance of evidence, and identify witnesses. The tools that members of the investigating team may need (pencil, paper, camera, film, camera flash, tape measure, etc.) should be immediately available so that no time is wasted.

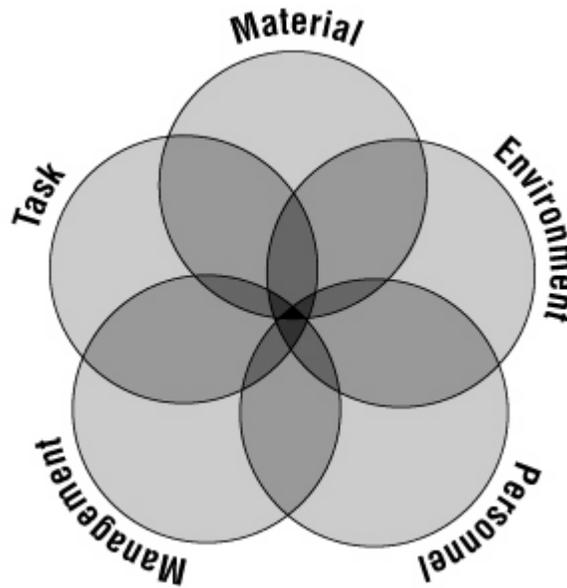
What should be looked at as the cause of an accident?

Accident Causation Models

Many models of accident causation have been proposed, ranging from Heinrich's domino theory to the sophisticated Management Oversight and Risk Tree (MORT).

The simple model shown in Figure 1 attempts to illustrate that the causes of any accident can be grouped into five categories - task, material, environment, personnel, and management. When this model is used, possible causes in each category should be investigated. Each category is examined more closely below. Remember that these are *sample* questions only: no attempt has been made to develop a comprehensive checklist.

Figure 1: Accident Causation



Task

Here the actual work procedure being used at the time of the accident is explored. Members of the accident investigation team will look for answers to questions such as:

- Was a safe work procedure used?
- Had conditions changed to make the normal procedure unsafe?
- Were the appropriate tools and materials available?
- Were they used?
- Were safety devices working properly?
- Was lockout used when necessary?

For most of these questions, an important follow-up question is "If not, why not?"

Material

To seek out possible causes resulting from the equipment and materials used, investigators might ask:

- Was there an equipment failure?
- What caused it to fail?
- Was the machinery poorly designed?
- Were hazardous substances involved?
- Were they clearly identified?
- Was a less hazardous alternative substance possible and available?
- Was the raw material substandard in some way?
- Should personal protective equipment (PPE) have been used?
- Was the PPE used?
- Were users of PPE properly trained?

Again, each time the answer reveals an unsafe condition, the investigator must ask **why** this situation was allowed to exist.

Environment

The physical environment, and especially sudden changes to that environment, are factors that need to be identified. The situation at the time of the accident is what is important, not what the "usual" conditions were. For example, accident investigators may want to know:

- What were the weather conditions?
- Was poor housekeeping a problem?
- Was it too hot or too cold?
- Was noise a problem?
- Was there adequate light?
- Were toxic or hazardous gases, dusts, or fumes present?

Personnel

The physical and mental condition of those individuals directly involved in the event must be explored. The purpose for investigating the accident is **not** to establish blame against someone but the inquiry will not be complete unless personal characteristics are considered. Some factors will remain essentially constant while others may vary from day to day:

- Were workers experienced in the work being done?
- Had they been adequately trained?
- Can they physically do the work?
- What was the status of their health?
- Were they tired?
- Were they under stress (work or personal)?

Management

Management holds the legal responsibility for the safety of the workplace and therefore the role of supervisors and higher management and the role or presence of management systems must always be considered in an accident investigation. Failures of management systems are often found to be direct or indirect factors in accidents. Ask questions such as:

- Were safety rules communicated to and understood by all employees?
- Were written procedures and orientation available?
- Were they being enforced?
- Was there adequate supervision?
- Were workers trained to do the work?
- Had hazards been previously identified?
- Had procedures been developed to overcome them?
- Were unsafe conditions corrected?
- Was regular maintenance of equipment carried out?
- Were regular safety inspections carried out?

This model of accident investigations provides a guide for uncovering all possible causes and reduces the likelihood of looking at facts in isolation. Some investigators may prefer to place some of the sample questions in different categories; however, the categories are not important, as long as each pertinent question is asked. Obviously there is considerable overlap between categories; this reflects the situation in real life. Again it should be emphasized that *the above sample questions do not make up a complete checklist, but are examples only.*

How are the facts collected?

The steps in accident investigation are simple: the accident investigators gather information, analyze it, draw conclusions, and make recommendations. Although the procedures are straightforward, each step can have its pitfalls. As mentioned above, an open mind is necessary in accident investigation: preconceived notions may result in some wrong paths being followed while leaving some significant facts uncovered. All possible causes should be considered. Making notes of ideas as they occur is a good practice but conclusions should not be drawn until all the information is gathered.

Injured workers(s)

The most important immediate tasks--rescue operations, medical treatment of the injured, and prevention of further injuries--have priority and others must not interfere with these activities. When these matters are under control, the investigators can start their work.

Physical Evidence

Before attempting to gather information, examine the site for a quick overview, take steps to preserve evidence, and identify all witnesses. In some jurisdictions, an accident site must not be disturbed without prior approval from appropriate government officials such as the coroner, inspector, or police. Physical evidence is probably the most non-controversial information available. It is also subject to rapid change or obliteration; therefore, it should be the first to be recorded. Based on your knowledge of the work process, you may want to check items such as:

- positions of injured workers
- equipment being used
- materials or chemicals being used
- safety devices in use
- position of appropriate guards
- position of controls of machinery
- damage to equipment
- housekeeping of area
- weather conditions
- lighting levels
- noise levels
- time of day

You may want to take photographs before anything is moved, both of the general area and specific items. Later careful study of these may reveal conditions or observations missed previously. Sketches of the accident scene based on measurements taken may also help in subsequent analysis and will clarify any written reports. Broken equipment, debris, and samples of materials involved may be removed for further analysis by appropriate experts. Even if photographs are taken, written notes about the location of these items at the accident scene should be prepared.

Eyewitness Accounts

Although there may be occasions when you are unable to do so, every effort should be made to interview witnesses. In some situations witnesses may be your primary source of information because you may be called upon to investigate an accident without being able to examine the scene immediately after the event. Because witnesses may be under severe emotional stress or afraid to be completely open for fear of recrimination, interviewing witnesses is probably the hardest task facing an investigator.

Witnesses should be kept apart and interviewed as soon as possible after the accident. If witnesses have an opportunity to discuss the event among themselves, individual perceptions may be lost in the normal process of accepting a consensus view where doubt exists about the facts.

Witnesses should be interviewed alone, rather than in a group. You may decide to interview a witness at the scene of the accident where it is easier to establish the positions of each person involved and to obtain a description of the events. On the other hand, it may be preferable to carry out interviews in a quiet office where there will be fewer distractions. The decision may depend in part on the nature of the accident and the mental state of the witnesses.

Interviewing

Interviewing is an art that cannot be given justice in a brief document such as this, but a few do's and don'ts can be mentioned. The purpose of the interview is to establish an understanding with the witness and to obtain his or her own words describing the event:

DO...

- put the witness, who is probably upset, at ease
- emphasize the real reason for the investigation, to determine what happened and why
- let the witness talk, listen
- confirm that you have the statement correct
- try to sense any underlying feelings of the witness
- make short notes or ask someone else on the team to take them during the interview
- ask if it is okay to record the interview, if you are doing so
- close on a positive note

DO NOT...

- intimidate the witness
- interrupt
- prompt
- ask leading questions
- show your own emotions
- jump to conclusions

Ask open-ended questions that cannot be answered by simply "yes" or "no". The actual questions you ask the witness will naturally vary with each accident, but there are some general questions that should be asked each time:

- Where were you at the time of the accident?
- What were you doing at the time?
- What did you see, hear?
- What were the environmental conditions (weather, light, noise, etc.) at the time?
- What was (were) the injured worker(s) doing at the time?
- In your opinion, what caused the accident?
- How might similar accidents be prevented in the future?

If you were not at the scene at the time, asking questions is a straightforward approach to establishing what happened. Obviously, care must be taken to assess the credibility of any statements made in the interviews. Answers to a first few questions will generally show how well the witness could actually observe what happened.

Another technique sometimes used to determine the sequence of events is to reenact or replay them as they happened. Obviously, great care must be taken so that further injury or damage does not occur. A witness (usually the injured worker) is asked to reenact in slow motion the actions that preceded the accident.

Background Information

A third, and often an overlooked source of information, can be found in documents such as technical data sheets, health and safety committee minutes, inspection reports, company policies, maintenance reports, past accident reports, formalized safe-work procedures, and training reports. Any pertinent information should be studied to see what might have happened, and what changes might be recommended to prevent recurrence of similar accidents.

What should I know when making the analysis and conclusions?

At this stage of the investigation most of the facts about what happened and how it happened should be known. This has taken considerable effort to accomplish but it represents only the first half of the objective. Now comes the key question-- why did it happen? To prevent recurrences of similar accidents, the investigators must find all possible answers to this question.

You have kept an open mind to all possibilities and looked for all pertinent facts. There may still be gaps in your understanding of the sequence of events that resulted in the accident. You may need to reinterview some witnesses to fill these gaps in your knowledge.

- When your analysis is complete, write down a step-by-step account of what happened (your conclusions) working back from the moment of the accident, listing all possible causes at each step. This is not extra work: it is a draft for part of the final report. Each conclusion should be checked to see if:
 - it is supported by evidence
 - the evidence is direct (physical or documentary) or based on eyewitness accounts, or
 - the evidence is based on assumption.

This list serves as a final check on discrepancies that should be explained or eliminated.

Why should recommendations be made?

The most important final step is to come up with a set of well-considered recommendations designed to prevent recurrences of similar accidents. Once you are knowledgeable about the work processes involved and the overall situation in your organization, it should not be too difficult to come up with realistic recommendations. Recommendations should:

- be specific
- be constructive
- get at root causes
- identify contributing factors

Resist the temptation to make only general recommendations to save time and effort.

For example, you have determined that a blind corner contributed to an accident. Rather than just recommending "eliminate blind corners" it would be better to suggest:

- install mirrors at the northwest corner of building X (specific to this accident)
- install mirrors at blind corners where required throughout the worksite (general)

Never make recommendations about disciplining a person or persons who may have been at fault. This would not only be counter to the real purpose of the investigation, but it would jeopardize the chances for a free flow of information in future accident investigations.

In the unlikely event that you have not been able to determine the causes of an accident with any certainty, you probably still have uncovered safety weaknesses in the operation. It is appropriate that recommendations be made to correct these deficiencies.

The Written Report

If your organization has a standard form that must be used, you will have little choice in the form that your written report is to be presented. Nevertheless, you should be aware of, and try to overcome, shortcomings such as:

- If a limited space is provided for an answer, the tendency will be to answer in that space despite recommendations to "use back of form if necessary."
- If a checklist of causes is included, possible causes not listed may be overlooked.
- Headings such as "unsafe condition" will usually elicit a single response even when more than one unsafe condition exists.
- Differentiating between "primary cause" and "contributing factors" can be misleading. All accident causes are important and warrant consideration for possible corrective action.

Your previously prepared draft of the sequence of events can now be used to describe what happened. Remember that readers of your report do not have the intimate knowledge of the accident that you have so include all pertinent detail. Photographs and diagrams may save many words of description. Identify clearly where evidence is based on certain facts, eyewitness accounts, or your assumptions.

If doubt exists about any particular part, say so. The reasons for your conclusions should be stated and followed by your recommendations. Weed out extra material that is not required for a full understanding of the accident and its causes such as photographs that are not relevant and parts of the investigation that led you nowhere. The measure of a good accident report is quality, not quantity.

Always communicate your findings with workers, supervisors and management. Present your information 'in context' so everyone understands how the accident occurred and the actions in place to prevent it from happening again.

What should be done if the investigation reveals "human error"?

A difficulty that has bothered many investigators is the idea that one does not want to lay blame. However, when a thorough worksite accident investigation reveals that some person or persons among management, supervisor, and the workers were apparently at fault, then this fact should be pointed out. The intention here is to remedy the situation, not to discipline an individual.

Failing to point out human failings that contributed to an accident will not only downgrade the quality of the investigation. Furthermore, it will also allow future accidents to happen from similar causes because they have not been addressed.

However never make recommendations about disciplining anyone who may be at fault. Any disciplinary steps should be done within the normal personnel procedures.

How should follow-up be handled?

Management is responsible for acting on the recommendations in the accident investigation report. The health and safety committee, if you have one, can monitor the progress of these actions.

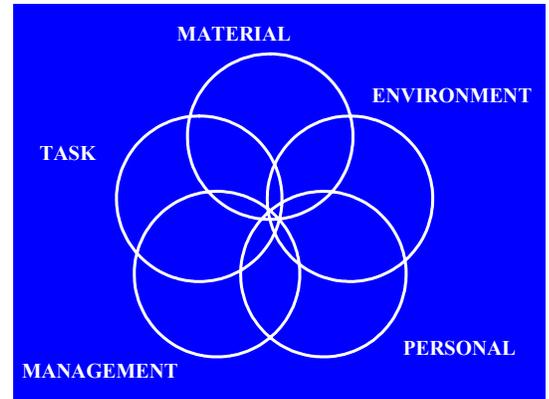
Follow-up actions include:

- Respond to the recommendations in the report by explaining what can and cannot be done (and why or why not).
- Develop a timetable for corrective actions.
- Monitor that the scheduled actions have been completed.
- Check the condition of injured worker(s).
- Inform and train other workers at risk.
- Re-orient worker(s) on their return to work.

Document last updated on April 20, 2006

Incident Causes

Incident causes can be grouped into five categories. These categories are material, task, management, personal and environment. Each category should be considered when investigating incidents.



1. *Material*

The equipment and material used by the employee or involved in the incident.

- Equipment failure related to maintenance issues or defects
- Machinery design or guarding related to poor design, foreign made, or missing guards
- Hazardous substances related to solvents, irritants, caustics
- Substandard material such as problems with stock

2. *Task*

The actual work procedure used at the time of the incident.

- Ergonomic issues related to repetitive motion, lifting, work station height
- Safe work procedures – JSA's and SOP's
- Condition changes such as new material, changes or modifications to equipment, job rotation
- Appropriate tools and materials related to the right tool for the right job
- Safety devices such as light curtains, pull backs, LOTO, GFCI's, PPE

3. *Management*

Management has legal responsibility for safety, therefore, management's involvement or lack thereof in the incident should be investigated.

- Visible active senior management support for safety through leading employee meetings and discussing safety
- Safety policies
- Enforcement of safety policies
- Adequate supervision
- Knowledge of hazards
- Hazard corrective action
- Preventative maintenance

- Regular safety audits

4. *Personal*

Physical and mental condition of those employees involved.

- Level of experience related to task
- Level of training related to length of time performing task
- Physical capability
- Health issues
- Fatigue
- Stress – work related and personal

5. *Environment*

The physical surroundings at the time of an incident. The situation at the time of the incident is more important than what the “usual” conditions were unless a sudden change to the environment is relative to the incident.

- Weather conditions when work is being performed outside
- Housekeeping in the work area
- Temperature
- Noise levels
- Lighting
- Air contaminants
- PPE

Sample Incident Causation Questions

(Canadian Centre for Occupational Health and Safety, Val Wuorinen)

Material

- ▶ Was there an equipment failure?
- ▶ What caused it to fail?
- ▶ Was the machinery poorly designed?
- ▶ Were hazardous substances involved?
- ▶ Were they clearly identified?
- ▶ Was a less hazardous substance available?
- ▶ Should PPE have been used?
- ▶ Was it used?

Management

- ▶ Were safety rules in effect?
- ▶ Were safety rules communicated to and understood by employees?
- ▶ Were written procedures in place?
- ▶ Were they being enforced?
- ▶ Was adequate supervision and training given?
- ▶ Had hazards been previously identified?
- ▶ Had procedures been developed to overcome them?
- ▶ Were unsafe conditions corrected?
- ▶ Was regular maintenance of equipment completed?
- ▶ Were regular safety inspections completed?

Task

- ▶ What work procedures was used?
- ▶ Was a safety work practice used?
- ▶ Had conditions changed to make the normal procedure unsafe?
- ▶ Were the appropriate tools and materials available?
- ▶ Were they used?
- ▶ Were safety devices working properly?
- ▶ Was lockout used when necessary?

Personal

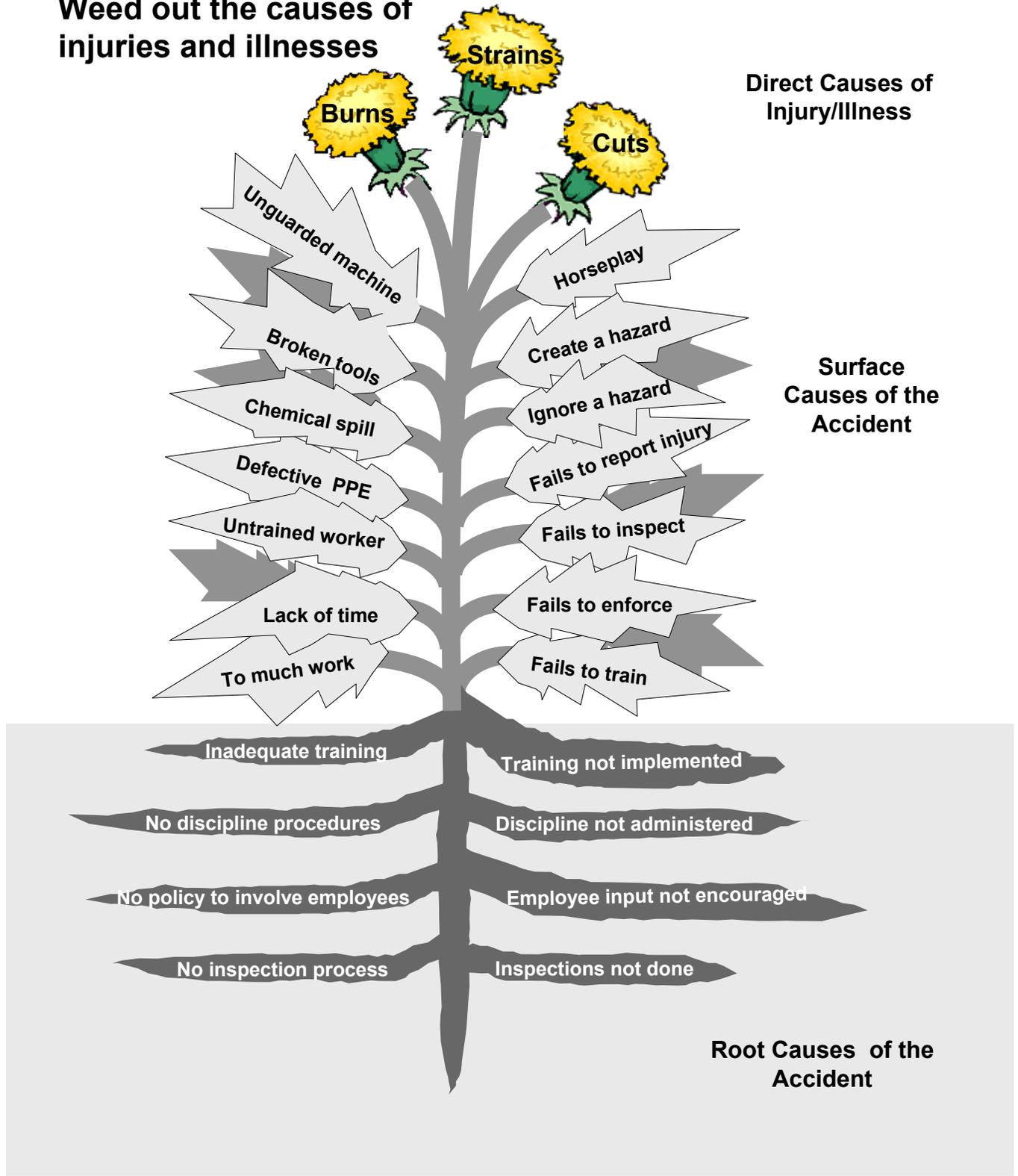
- ▶ Were workers experienced in the work being done?
- ▶ Had they been adequately trained?
- ▶ Can they physically do the work?
- ▶ What was the status of their health?
- ▶ Were they tired?
- ▶ Were they under stress (work or personal)?

Environment

- ▶ What were the weather conditions?
- ▶ Was poor housekeeping a problem?
- ▶ Was it too hot or too cold?
- ▶ Was noise a problem?
- ▶ Was there adequate light?
- ▶ Were toxic or hazardous gases, dusts or fumes present?

Accident Investigation

Weed out the causes of injuries and illnesses



Exercise: Digging up the roots

1. Enter the direct cause of injury within the top rectangle below.
2. List one hazardous condition and 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 _____ _____	
<u>Hazardous Condition</u> _____ <u>Contributing conditions</u> _____ _____ _____ _____	<u>Unsafe Behavior</u> _____ <u>Contributing behaviors</u> _____ _____ _____ _____
<u>Design root causes</u> _____ _____ _____ _____	<u>Implementation root causes</u> _____ _____ _____ _____

ACCIDENT ANALYSIS STEPS

Basic Procedure

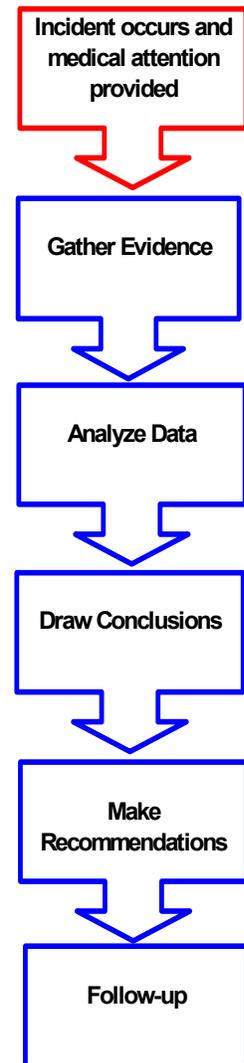
Incidents can be investigated by one or more persons who have been trained in the investigation process. The number of investigators may depend on the type and severity of the incident. The immediate supervisor is likely to know the most about the work and persons involved in the accident. At any rate, those performing incident investigations must remain impartial. An investigator who believes accidents are caused by unsafe conditions will likely try to uncover conditions as causes.

The basic procedure for investigating incidents is to gather information, analyze it, draw conclusions, make recommendations and follow-up. The emphasis should be on fact-finding and not fault-finding. If fault-finding is perceived as the motivation of the investigation, witnesses or employees will furnish very little information as a means of self-preservation.

1. Gather Evidence

The most difficult and time-consuming aspect of this procedure is gathering information. The quality and quantity of information is better if it is gathered as soon after the incident as possible. When gathering data consider the following data sources:

- Physical evidence: Examine the site for a quick overview, taking steps to preserve evidence and identify all witnesses. Physical evidence is the most non-controversial information available and is subject to rapid change. Look for items such as positions of injured workers, equipment and materials being used, safety devices in use, position of guards, position of controls of machinery, damage to equipment, housekeeping in area, weather conditions, lighting levels, and noise levels. Take photographs prior to any items being moved, if possible.
- Injured worker: Get statements in writing. Injured workers may be interviewed.
- Witnesses: Get statements in writing, if available. Witnesses may be primary source of information (if injured worker is not available). Witnesses should be individually interviewed as soon as possible after incident. They should be separated until after interviewing since talking amongst themselves is



likely to alter their perception of events. Interviewing witnesses is very difficult task, especially if fault-finding is perceived.

- **Interviewing**: Should always be done individually rather than in group setting. It is recommended that one investigator conduct interviews instead of multiple investigators. Witnesses can feel intimidated if more than one interviewer is present. See Section 5 for additional information on interviewing techniques.
- **Background information**: Review maintenance reports, past accident reports, formalized safe-work procedures, training records, and owner's manuals.

An Incident Investigation Kit is helpful to ensure that the tools necessary to perform an investigation are readily available. Large facilities may need more than one kit.

2. Analyze Data

A group and not one individual should conduct the analysis phase of the procedure. The designated team should meet together to analyze the incident. The analysis of the incident is more thorough and efficient when conducted by a group. For example: An incident occurs using a band saw, partly because the blade guard has been removed. The direct supervisor is unavailable to investigate the incident so another supervisor does it instead. The investigator photographs the incident scene and does not recognize the missing guard. After the information has been gathered and the group meets, a supervisor on the analysis team identifies the missing guard as one of the root causes from the photographs.

Most of the facts should now be known such as what, where, when, who, and how the incident happened. Analyzing the data will tell you why it happened.

Many tools exist to provide assistance in determining root causes (and developing recommendations). Some of those tools may include brainstorming, five whys, decision tree, and fishbone diagramming.

Brainstorming: Most effective when used a group tool. Group members can build off of the ideas of others to come up with unique and creative solutions. A minimum three step process should be used: 1) Define the problem, 2) Generate ideas, 3) Organize the data

Five Whys: Best used when problems involve human factors or interactions or in day-to-day business life. Helps to identify the root causes of problems and may help determine the relationship between different root

causes of a problem. Asking why helps get below the layers of symptoms of an incident in order to identify the faulty systems which allowed the incident to occur.

Decision Tree (accident tree, fault tree): Start from a top event (incident) and list all the possible conditions that conceivably could lead to the top event by asking “why”. The completed tree shows how individual events and failures may combine to produce the top event. Each branch of the tree should identify a root cause.

Fishbone Diagramming: Useful for group brainstorming and problem solving. Used to identify, clarify, and display the possible causes related to the incident. Major cause categories could be the five Causal Factors (material, task, management, personal, and environment). Add additional causes related to each category in order to get a complete listing of possible causes.

3. Draw Conclusions

Once a list of root causes has been determined, conclusions should be drawn as to why the incident occurred. In rare circumstances will only one root cause be solely responsible. The analysis team should try to piece together a scenario or timeline for the incident and determine the degree of responsibility for each root cause. For example: Two of the root causes of the incident involving the band saw are no blade guard and no training on proper use. Since the employee has only been working for two days in the department, much of the responsibility for the incident lies with the delayed orientation/training. If the employee would have been trained on the band saw operation, they would have known that the saw should not be operated without the guard firmly attached to the saw and properly adjusted. The potential for the incident would have been significantly lower.

4. Make Recommendations (Corrective actions)

Conclusions obtained in Step 3 should be used to develop recommendations designed to reduce the potential for the incident to reoccur rather than protect the workers when they do occur. For example: A forklift driver drives into a dark warehouse and doesn't see a beam. The driver hits the beam and is thrown from the lift truck hitting his head resulting in a head injury. The solution should not be that all forklift drivers are required to wear hardhats, but to provide adequate lighting where forklifts must travel.

Recommendations should be specific rather than general in nature. A written report should be prepared and submitted for review. All pictures

and diagrams should be included with the written report. It is likely that members of the safety committee will not have intimate knowledge of the accident prior to review.

The final analysis should identify the root causes of the incident, recommend actions to eliminate future incidents, assign responsibilities for completion, and indicate who will follow-up and share the results with all employees.

5. *Follow-up*

Following-up after implementing recommendations will ensure changes have been effective. Changes may address the root causes of an incident, however, they may also create additional hazards or may not be as effective as originally planned. Suggested timeframes include 30 days, 90 days, 6 months, and yearly.

**Ohio Center for Occupational Safety & Health
Training Center**

Accident Analysis

KIT

Here are some suggested items that would be helpful in the analysis of an accident. These articles might be kept in an analysis kit. They should be readily available for use at all times.

- Camera, extra film, flash attachment
- Clipboard, paper, pencils
- Graph paper (for diagram)
- Copy of pertinent guidelines, standard operating procedures, and pre-accident plan (listing of emergency telephone numbers)
- Ruler and tape measure
- Identification tags (for parts)
- Accident investigation forms
- Interview comment sheet (blank paper)
- Personal protective clothing or equipment
- Containers (for material samples)
- Barrier tape or cord (to rope off areas)

Accident Investigation Kit Contents

Basic Equipment

Barricade tape
Cones
Flashlight/Spotlights (spare batteries)
Tape measure (up to 100 ft.)
Voice recorder (spare batteries and cassettes)
Camera, 35mm with date\time stamp (zoom\close-up. Spare film, slide & print)
clipboard
Notepad
Graph paper
Pencils, pens, makers
Ruler
Compass
Tweezers
Magnifying glass
Cloves (latex and work)
Personal protective equipment
Witness statement forms
Evidence log
A copy of your unit's accident investigation policy
Laptop computer\pocket computer\calculator

Optional Equipment

Binoculars
Polaroid camera with date\time stamp (close-up lens)
Video camera or camcorder
Inclinometer
Optical range finder
Handheld GPS unit
Pocket multi-tool with case
Screwdriver, flat tip
Screwdriver, Phillips
Pliers
Wrench, crescent, 8 inch
Evidence tags\bags

Evidence Log (for non-photographic evidence)

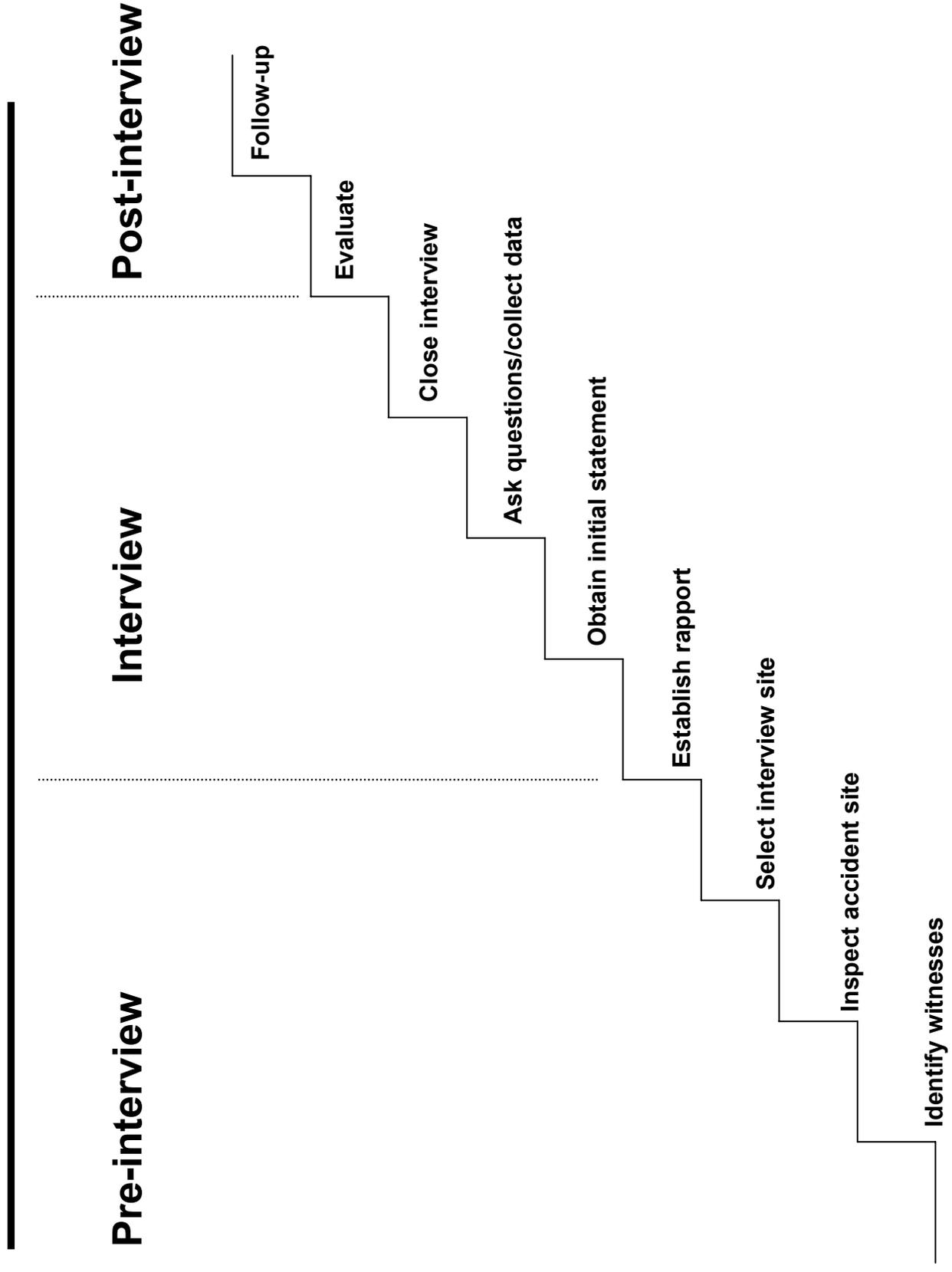
Incident Identification: _____

Evidence Custodian: _____

Date Collected	Name of Individual who Collected the Evidence	Name of Person Logging the Evidence	Description of Evidence	Remarks (location found, etc.)	Evidence Identification Number	Sign In (Signature Required)	Date Signed In

INCIDENT SCENE PRIORITIES

<p>First Priorities at the Scene of the Incident</p>	<ul style="list-style-type: none"> • Arrive safely and take charge. • Observe the overall scene upon arrival and evaluate the situation. • Care of the injured. • Protect others from injury. • Remove onlookers from the immediate area.
<p>Secondary Priorities at the Scene of the Incident</p>	<ul style="list-style-type: none"> • Preserve the evidence. • Protect the incident scene. • Secure the evidence. • Keep the boss informed.
<p>Preserving Evidence</p>	<ul style="list-style-type: none"> • Control crowds and traffic. • Take charge. • Take photographs or make sketches. • Hold witnesses. • Erect barriers.
<p>Gathering Evidence</p>	<ul style="list-style-type: none"> • Gather samples. • Label samples. • Take measurements. • Identify photos or sketches. • Identify witnesses by name, address, etc.
<p>Interviewing Witnesses</p>	<ul style="list-style-type: none"> • Interview in a quiet, neutral, non-threatening location. • Tell witnesses the purpose of the interview. • Record essential information. • Let witness tell the story in their own terms; do not interrupt. • Use a recorder (with approval) and take notes. • Avoid leading questions, be neutral, and use tact/diplomacy.



Interviewing Do's and Don'ts

Do's

- ▶ Begin by asking questions that are not likely to cause the interviewee to be defensive or hostile
- ▶ Put the interviewee at ease
- ▶ Emphasize the real reason for the investigation – to determine what happened and why
- ▶ Let the interviewee talk, uninterrupted
- ▶ Confirm that you have their statement correct
- ▶ Try to sense any underlying feeling of the interviewee
- ▶ Make short notes only during interview
- ▶ Ask open ended questions; where were you at the time of the incident, what were you doing, what did you see or hear, what were the environmental conditions, what was the injured worker doing
- ▶ Ask questions that will develop facts in the order of occurrence.
- ▶ Ask only one question at a time
- ▶ Give the interviewee ample time to answer questions
- ▶ Repeat or rephrase questions to get complete answers
- ▶ Be sure you understand the answers to your questions and follow-up if you don't
- ▶ Have interviewee draw diagrams
- ▶ Keep records of the interview

Don't

- ▶ Intimidate the interviewee (stand over them, sit across large desk)
- ▶ Interrupt
- ▶ Prompt
- ▶ Ask leading questions
- ▶ Show your own emotions
- ▶ Make lengthy notes while the interviewee is talking
- ▶ Persuade interviewee by facial expressions, gestures, tone or type of questions.

Accident Investigation CONDUCTING BETTER INTERVIEWS

1. Have a designated individual conduct the interview.
2. Get preliminary statements from the person(s) involved and witness(es) as soon as possible.
3. Establish the location of each person at the time of the accident.
4. Arrange for a convenient time and place to talk to each person
5. Explain the purpose of the investigation (**Accident Prevention/Fact-Finding, Not Fault Finding**). Put each person at ease.
6. **Listen**, let each person speak freely, and be courteous and considerate.
7. Take notes without distracting the individual. Use a tape recorder only with the consent of the person being interviewed.
8. If necessary, use a sketch or a diagram to help the person.
9. Emphasize what happened or was directly observed. Label speculation as such.
10. Be sincere and **DO NOT** argue with or interrupt the interviewee.
11. Record the exact words used by the person to describe the accident. Do not put words in the interviewee's mouth.
12. Word each question carefully and be sure the interviewee understands. Avoid questions that only require a yes or no answer. **An example would be asking the person if a vehicle was going too fast as opposed to asking the person to estimate the speed of the vehicle.**
13. After the person has finished, ask specific questions for clarification: environmental conditions, hazards noted, and incidents that occurred just prior to or after the accident.
14. Identify the qualifications and personal information of each person: name, address, occupation, training, years of experience, etc.
15. Have the person write their statement. If that is not possible, you or someone designated by the person can record the statement. Review the statement for accuracy. Have the statement, along with any corrections, signed and dated. Supply each person with a copy of his or her statement.

FACT VERSUS SUPPOSITION

During an investigation, your job is to discover all of the facts relating to the incident. However, sometimes it is easy to confuse facts with suppositions. Let's look at the difference between fact and supposition.

Fact	Supposition
Definition: Example:	Definition Example:

Directions: Read the following details about an incident and identify the facts by underlining them and identify the suppositions by circling them.

Incident Description

John notified his supervisor that his wrist was very sore. He thinks he sprained it earlier when he was moving a piece of equipment. Paul, who works near John, said the reason was probably because Sam hadn't placed the equipment properly, making John have to reach too far to lift. Sam tended to do that. The equipment is supposed to be placed 5 to 10 inches from the table edge. When Sue measured the equipment; it was 7 inches from the edge.

Sample Questions to Ask Accident Witnesses

General Questions. General questions are open-ended questions that can help get the witness talking. For example:

What did you see?
What can you recall?
Tell me more about that.

Directed Questions. Directed questions get the witness to focus on a specific subject, without biasing the answer. For example:

Did you notice any lights on the vehicle?

Specific Questions. Specific questions are needed for specific information (such as information about a particular light). For example:

What color was the light?

Summary Questions. Summary questions help witnesses organize their thoughts and draw attention to possible additional information. Restate what you think the witness told you in your own words and ask if that's correct. Frequently, the witness will add more information.

Avoid Leading Questions. A leading question contains or implies the desired answer. Once you ask a leading question, you have suggested what the witness is supposed to have seen. For example:

Was a red light flashing?

Techniques That Do Not Require Questions. Some interview techniques do not require questions. A nod of your head or an expectant pause may encourage the witness to talk. To keep a witness talking, say something like "uh-huh," "really," or "continue." Another technique is to mirror or echo the witness' comments. Repeat what the witness said without agreeing or disagreeing. For example:

You say you saw smoke coming from the vehicle?

Sample Questions to Ask Accident Witnesses (cont.)

What is your name, work address, and phone number?

What is your duty station (location) and position (job title)?

What is your technical background, skills, or knowledge?

What were you doing before the accident happened? What did you see of the actual accident? What happened after the accident?

What is your connection with those involved in the accident?

At what time did you see the accident happen?

What attracted your attention to the accident?

What was the position of the vehicle or equipment, and individual involved in the accident, when first seen?

What was the direction of travel, fall, or final resting place of the vehicle or equipment, and individual involved in the accident? (Have the witness draw a diagram, if appropriate).

What was the weather at the time of the accident? Was it clear and sunny? Was it rainy or smoky? What were the winds conditions (velocity, gusty)?

What actions did you take at the accident site?

Were there any other witnesses around? Do the police have other witnesses' names?

Do you wear glasses or a hearing aid? What type? Did you have your glasses or hearing aid on?

What do you think was the main cause of the accident?

What do you think might help prevent this from happening again?

Is there any additional information you would like to provide? Is there anyone else that you know of that we should talk with?

Follow-up – If you think of anything else that would be helpful to the investigation please contact us.

PHRASING INTERVIEW QUESTIONS

Reword each of the following questions to make them more open-ended or to avoid leading the witness to a specific conclusion.

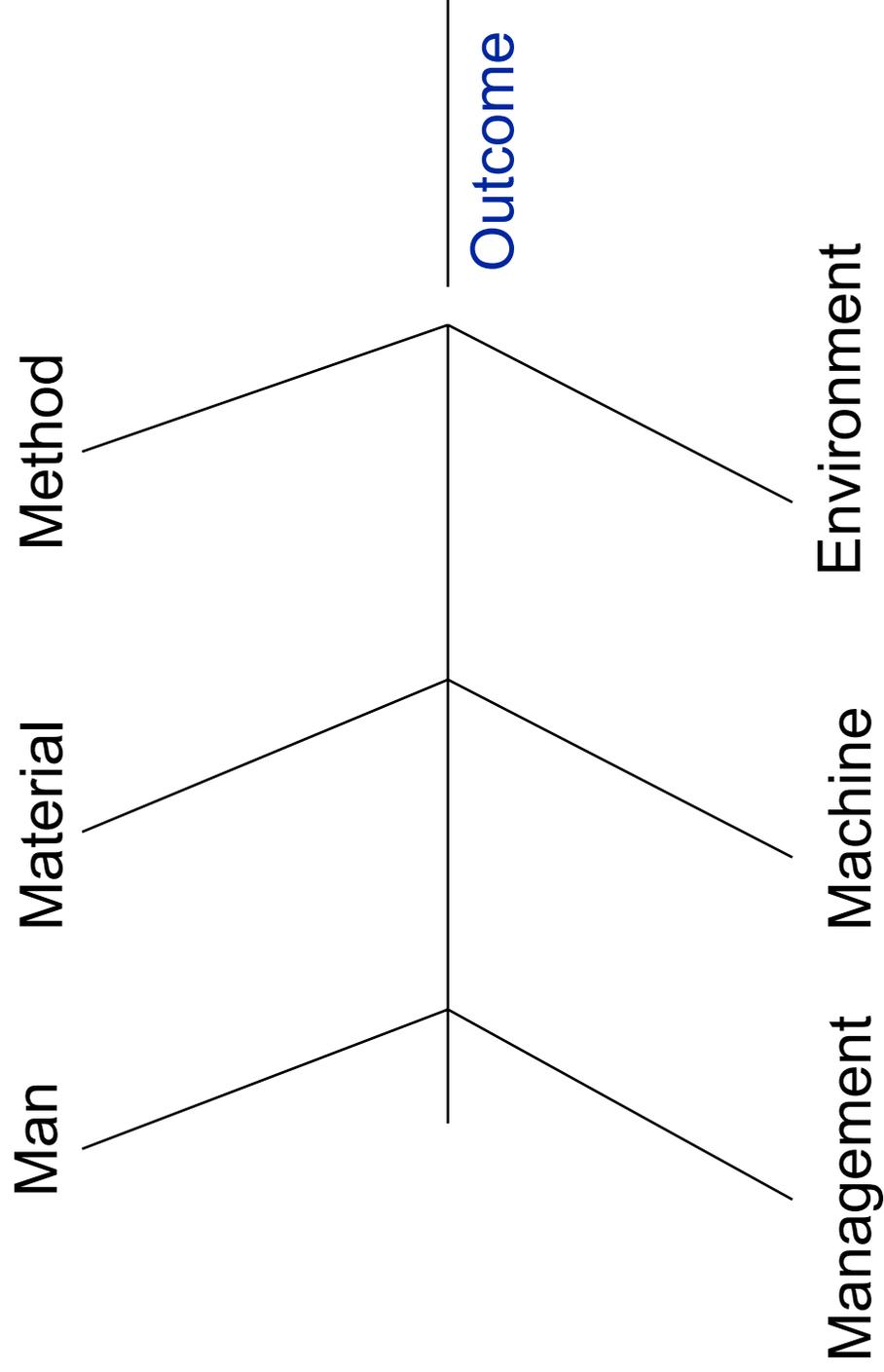
1. In which direction was the individual running when he tripped on the pallet?

2. Did you see the operator reach past the guard and stick her hand inside the machine?

3. Did you realize that the person was angry before he got on the forklift?

Source: Summit Training Source, Inc.
9/29/95

Cause & Effect Diagram



Fishbone Diagram

A Problem-Analysis Tool

What is a Fishbone diagram?

Dr. Kaouru Ishikawa, a Japanese quality control statistician, invented the fishbone diagram. Therefore, it may be referred to as the Ishikawa diagram. The fishbone diagram is an analysis tool that provides a systemic way of looking at the effects and the causes that create or contribute to those effects. Because of the function of the fishbone diagram, it may be referred to as a cause-and-effect diagram. The design of the diagram looks much like the skeleton of a fish. Therefore, it is often referred to as the fishbone diagram.

When should a fishbone diagram be used?

Does the team...

- Need to study a problem/issue to determine the root cause?
- Want to study all the possible reasons why a process is beginning to have difficulties, problems, or breakdowns?
- Need to identify areas for data collection?
- Want to study why a process is not performing properly or producing the desired results?

How is a fishbone diagram constructed?

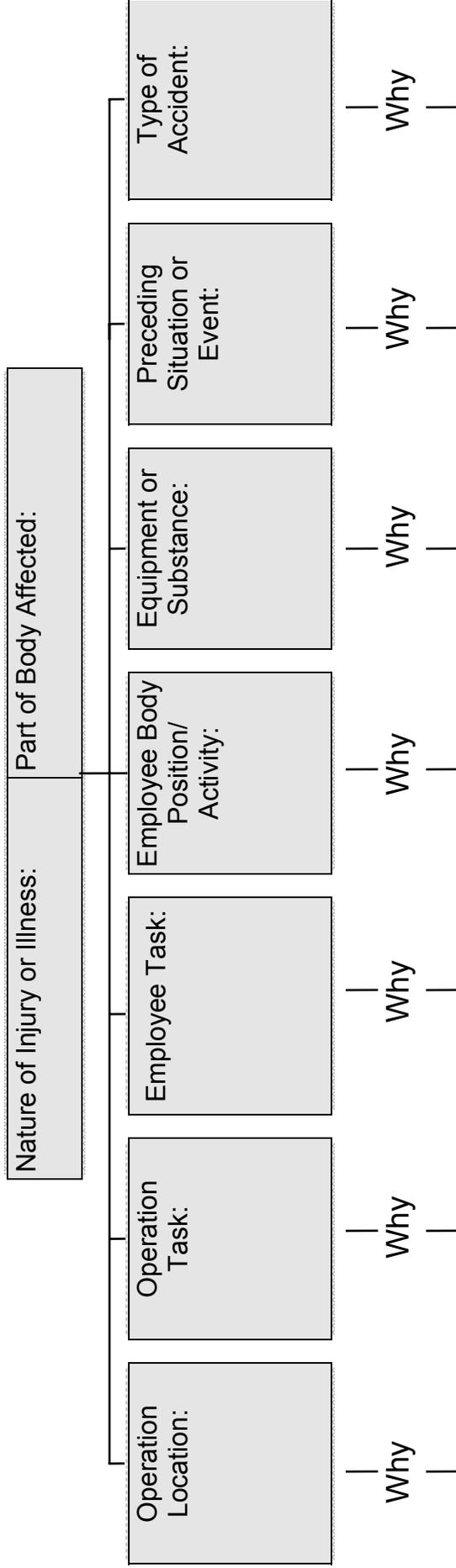
Basic Steps:

1. Draw the fishbone diagram...
2. List the problem/issue to be studied in the “head of the fish.”
3. Label each “bone” of the “fish.” The major categories typically utilized are:
 - The 4 M’s
 - ➡ Methods, Machines, Materials, and Manpower
 - The 4 P’s
 - ➡ Place, Procedure, People, and Policies
 - The 4 S’s:
 - ➡ Surroundings, Suppliers, Systems, and Skills

Note: You may use one of the four categories suggested, combine them in any fashion, or make up your own. The categories are to help you organize your ideas.

4. Use an idea-generating technique (e.g., brainstorming) to identify the factors within each category that may be affecting the problem/issue and/or effect being studied. The team should ask... “What are the machine issues affecting/causing...”
5. Repeat this procedure with each factor under the category to produce sub-factors. Continue asking, “Why is this happening?” and put additional segments each factor and subsequently under each sub-factor.
6. Continue until you no longer get useful information as you ask, “Why is this happening?”
7. Analyze the results of the fishbone after team members agree that an adequate amount of detail has been provided under each major category. Do this by looking for those items that appear in more than one category. These become the “most likely causes.”
8. For those items identified as the “most likely causes,” the team should reach consensus on listing those items in priority order with the first item being “the most probable” cause.

Accident Tree



OCCUPATIONAL INJURY & ILLNESS TERMS

Nature of Injury

- Amputations
- Burns
- Contusions
- Dislocations
- Foreign Body in Eye
- Fractures
- Lacerations/Punctures
- Sprains/Strains
- Cumulative Trauma Disorders
- Other Occupational Illnesses
- Multiple injuries

Part of Body

- Eyes
- Head
- Face & Neck
- Back
- Trunk/Internal Organs
- Arms
- Hands
- Fingers
- Legs
- Feet/Toes
- Multiple Major Body Parts
- Internal Systems

Type of Accident or Exposure

- Caught In, On, or Between
- Contact with Temperature Extremes/Fire/Explosion
- Contact with Electrical Current
- Fall: Same Level
- Fall: Different Level
- Contact with Harmful Substances
- Motor Vehicle Accidents
- Striking Against
- Struck By Flying/Falling Objects
- Slips (Not Falls)/Bodily Reaction
- Overexertion

The last two steps will help you develop and propose solutions that correct hazards and design long-lasting system improvements.



Step 5: Recommend corrective actions & Improvements

The Hierarchy of Controls

1. Engineering Controls - Remove or reduce the hazard

- Eliminates or reduces the severity of the hazard itself through initial design and redesign, enclosure, substitution, replacement and other engineering changes.
- Major strengths: Eliminates the hazard itself. Does not rely solely on human behavior for effectiveness.
- Major weakness: May not be feasible if controls present long-term financial hardship.

2. Management Controls - Remove or reduce the exposure

- Reduce the duration, frequency, and severity of exposure to hazards primarily through (1) changes and work procedures and practices, and (2) scheduling, job rotation, breaks.
- Major weakness: Relies on (1) appropriate design and implementation of controls and (2) appropriate employee behavior.

3. Personal protective equipment (PPE) - Put up a barrier

- Equipment for personal use that presents a barrier between worker and hazard.
- Major weakness: Relies on (1) appropriate design and implementation of controls (2) appropriate employee behavior.

Team Exercise: Recommending Corrective actions



Purpose: In this exercise you'll develop and recommend immediate actions to correct the surface causes of an accident.

Instructions. Using the hierarchy of control strategies as a guide, determine corrective actions that will eliminate or reduce one of the hazardous conditions or unsafe behaviors identified by your instructor. Write your recommendation(s) below.

Recommendation: _____

CONTROLLING HAZARDS



Engineering Controls

Hazard + Exposure = Accident

Engineering controls consist of substitution, isolation, ventilation, and equipment modification. These controls focus on the source of the hazard, unlike other types of controls that generally focus on the employee exposed to the hazard. The basic concept behind engineering controls is that, to the extent feasible, the work environment and the job itself should be designed to eliminate hazards or reduce exposure to hazards.

Engineering controls are based on the following broad principles:

1. If feasible, **design the facility, equipment, or process to remove the hazard** and/or substitute something that is not hazardous or is less hazardous.
 - Redesigning, changing, or substituting equipment to remove the source of excessive temperatures, noise, or pressure;
 - Redesigning a process to use less toxic chemicals;
 - Redesigning a work station to relieve physical stress and remove ergonomic hazards; or
 - Designing general ventilation with sufficient fresh outdoor air to improve indoor air quality and generally to provide a safe, healthful atmosphere.
2. If removal is not feasible, **enclose the hazard to prevent exposure** in normal operations.
 - Complete enclosure of moving parts of machinery;
 - Complete containment of toxic liquids or gases;
 - Glove box operations to enclose work with dangerous microorganisms, radioisotopes, or toxic substances; and
 - Complete containment of noise, heat, or pressure-producing processes.
3. Where complete enclosure is not feasible, **establish barriers or local ventilation to reduce exposure** to the hazard in normal operations. Examples include:
 - Ventilation hoods in laboratory work;
 - Machine guarding, including electronic barriers;
 - Isolation of a process in an area away from workers, except for maintenance work;
 - Baffles used as noise-absorbing barriers; and



Management Controls

$$\text{Hazard} + \text{Exposure} = \text{Accident}$$

Any procedure which 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, or making other changes in the way the employee performs the job. The use of personal protective equipment is not considered a means of management control.

1. Some of these **general practices** are very general in their applicability. They include housekeeping activities such as:
 - Removal of tripping, blocking, and slipping hazards;
 - Removal of accumulated toxic dust on surfaces; and
 - Wetting down surfaces to keep toxic dust out of the air.
2. Other safe work practices apply to specific jobs in the workplace and involve **specific procedures** for accomplishing a job. To develop these procedures, you conduct a job hazard analysis.
3. Measures aimed at reducing employee exposure to hazard by **changing work schedules**. Such measures include:
 - Lengthened rest breaks,
 - Additional relief workers,
 - Exercise breaks to vary body motions, and
 - Rotation of workers through different jobs

Why are engineering controls considered superior to management controls?



Personal Protective Equipment (PPE)

$$\text{Hazard} + \text{Exposure} = \text{Accident}$$

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, personal protective clothing and/or equipment may be required.

PPE includes such items as:

- | | | | |
|--------------|------------------|----------------|--------------|
| Face shields | Steel-toed shoes | Safety glasses | Hard hats |
| Knee guards | Leather aprons | Mesh gloves | Life jackets |
| Respirators | Ear muffs | Safety goggles | Harness |



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 actually shutting down an operation temporarily. The importance of taking these interim protective actions cannot be overemphasized. There is no way to predict when a hazard will cause serious harm, and no justification to continue exposing workers unnecessarily to risk.

What might be some of the drawbacks of reliance solely on PPE to protect workers?

Report Writing and Follow-Up

Introduction and purpose. Where, when it occurred; who and what were involved; (operating personnel and other witnesses).

Methodology. Discuss the investigation itself, and the techniques used to determine the sequence of events, causes, and corrective actions.

Account of the accident. What happened—sequence of events, extent of damage, accident type, agency or source (of energy or hazardous materials).

Discussion. An analysis of the accident. Include the how and the why. List direct causes (energy sources; hazardous materials); indirect causes (unsafe acts and conditions); and basic causes (management policies; personal or environmental factors).

Recommendations to prevent a recurrence. Include those for immediate and long-range action to remedy the basic, indirect, and direct causes. Limit your recommendations to those that affect this incident. If by chance, during your investigation, you uncovered other unsafe procedures or conditions, you should note them in a separate document and follow-up accordingly.

Appendices. These can be used as reference information. Examples of applicable appendices are:

- Weather forecasts or conditions
- Equipment analysis, such as an expert opinion
- A list of facts collected, or photos
- Witness statements
- A list of evidence

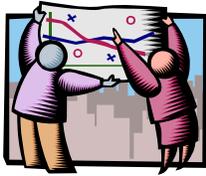
Follow-Up

Importance of Follow-Up

- ✓ To verify the effectiveness of your corrective actions over time
- ✓ To ensure corrective actions and preventive actions become a permanent part of the system
- ✓ To determine if there are any improvements that need to be made to the corrective actions
- ✓ To identify system breakdowns and to determine how to address these breakdowns
- ✓ To ensure employees are involved in safety and are empowered to take appropriate actions
- ✓ Failure to follow through on the recommended solutions can lead to criminal charges if the incident happens again

How to Follow-Up

- ✓ Continue to track and analyze data with the goal of identifying additional hazard trends



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. Management Commitment
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 that include all of the above elements..
- Improving a safety policy so that it clearly establishes responsibility and accountability.
- Changing a training plan so that the use of checklists are taught.
- Revising purchasing policy to include safety considerations as well as cost.
- Changing the safety inspection process to include all supervisors and employees.

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



Purpose: In this exercise you'll develop and recommend one improvement to make sure the case study accident does not recur.

Instructions. Develop and write a recommendation to improve one or more policies, plans, programs, processes, procedures, and practices identified as design weaknesses.

Recommendation: _____

STANDARDIZING THE CHANGE

Your goal should be to make your recommendations permanent and organization-wide. Here are some suggestions for getting the job done:

1. Write up the new processes/procedures as soon as possible.
2. Change all formal documents such as procedures manuals, orientation handbooks, job descriptions, etc.
3. Provide training and orientation.
4. Clearly communicate everything that needs to be known about the change.
5. Establish feedback and consequences appropriate for the changes.
6. Build on successes.
7. Focus on believers.
8. Let your small gains give you momentum.
9. Build using one brick at a time.
10. Make your own actions consistent with the requirements of the change.

NATURE OF INJURY TRENDS
Injury/Illness Statistics

	Amputations	Burns	Contusions	Foreign Body In Eye	Fractures	Lacerations / Punctures	Sprains/ Strains	Cumulative Trauma Disorders	Multiple Injuries	TOTALS
January										
February										
March										
April										
May										
June										
July										
August										
September										
October										
November										
December										
TOTALS										

PART OF BODY TRENDS
Injury/Illness Statistics

	Eyes	Head	Face & Neck	Back	Trunk/ Internal Organs	Arms	Hands/ Fingers	Legs	Feet/ Toes	Multiple Parts	TOTALS
January											
February											
March											
April											
May											
June											
July											
August											
September											
October											
November											
December											
TOTALS											

TYPE OF ACCIDENT OR EXPOSURE TRENDS
Injury/Illness Statistics

	Caught In, On, or Between	Contact w/ Temperature Extremes	Contact w/ Electricity	Falls	Contact w/ Harmful Substances	Striking Against	Struck By	Slips	Overexertion	TOTALS
January										
February										
March										
April										
May										
June										
July										
August										
September										
October										
November										
December										
TOTALS										

Ohio Center for Occupational Safety & Health
ACCIDENT ANALYSIS SEMINAR

Self Analysis Accident Analysis Report Form

Information	Y	N	Comment
I. Form:			
A. Case or File Number			
B. Claim Number			
II. Employer:			
A. Name			
B. Mailing Address			
C. Location			
D. Telephone			
E. Risk Number			
F. Manual Number(s)			
III. Employee:			
A. Name			
B. Social Security Number			
C. Home Address			
D. Age/ Date of Birth			
E. Sex			
F. Occupation			
G. Department			
H. Shift			
I. Time Shift Started			
J. Overtime			
K. ID Number			
L. Telephone			
M. Performing Regular Job			
N. Length of Service with Employer			
O. Length of Service on Job			

Information	Y	N	Comment
IV. The Accident or Exposure:			
A. Location			
B. On Employer's Premises			
C. What Was The Employee Doing			
D. How Did It Occur			
E. Date and Time of the Accident			
V. The Injury or Illness:			
A. Describe it in Detail (body part)			
B. Name the Object or Substance Directly Involved			
C. Date and Time of the Injury or Initial Diagnosis			
D. Fatality			
E. Date of Death			
VI. Other:			
A. Name and Address of Physician			
B. Name and Address of Hospital			
C. Date of Report			
D. Prepared By			
E. Official Position			
F. Machinery/Equipment Involved			
G. Training			
H. Specific Action that Will be Taken			
I. Reviewed By			
J. STATEMENT(S) BY a) Employee b) Employer c) Witness(es)			

OSHA Forms for Recording Work-Related Injuries and Illnesses

Dear Employer:

This booklet includes the forms needed for maintaining occupational injury and illness records for 2004. These new forms have changed in several important ways from the 2003 recordkeeping forms.

In the December 17, 2002 Federal Register (67 FR 77165-77170), OSHA announced its decision to add an occupational hearing loss column to OSHA's Form 300, Log of Work-Related Injuries and Illnesses. This forms package contains modified Forms 300 and 300A which incorporate the additional column M(5) Hearing Loss. Employers required to complete the injury and illness forms must begin to use these forms on January 1, 2004.

In response to public suggestions, OSHA also has made several changes to the forms package to make the recordkeeping materials clearer and easier to use:

- On Form 300, we've switched the positions of the day count columns. The days "away from work" column now comes before the days "on job transfer or restriction."
- We've clarified the formulas for calculating incidence rates.
- We've added new recording criteria for occupational hearing loss to the "Overview" section.
- On Form 300, we've made the column heading "Classify the Case" more prominent to make it clear that employers should mark only one selection among the four columns offered.

The Occupational Safety and Health Administration shares with you the goal of preventing injuries and illnesses in our nation's workplaces. Accurate injury and illness records will help us achieve that goal.

*Occupational Safety and Health Administration
U.S. Department of Labor*

What's Inside...

In this package, you'll find everything you need to complete OSHA's *Log* and the *Summary of Work-Related Injuries and Illnesses* for the next several years. On the following pages, you'll find:

- ▼ **An Overview: Recording Work-Related Injuries and Illnesses** — General instructions for filling out the forms in this package and definitions of terms you should use when you classify your cases as injuries or illnesses.
- ▼ **How to Fill Out the Log** — An example to guide you in filling out the *Log* properly.
- ▼ **Log of Work-Related Injuries and Illnesses** — Several pages of the *Log* (but you may make as many copies of the *Log* as you need.) Notice that the *Log* is separate from the *Summary*.
- ▼ **Summary of Work-Related Injuries and Illnesses** — Removable *Summary* pages for easy posting at the end of the year. Note that you post the *Summary* only, not the *Log*.
- ▼ **Worksheet to Help You Fill Out the Summary** — A worksheet for figuring the average number of employees who worked for your establishment and the total number of hours worked.
- ▼ **OSHA's 301: Injury and Illness Incident Report** — A copy of the OSHA 301 to provide details about the incident. You may make as many copies as you need or use an equivalent form.

Take a few minutes to review this package. If you have any questions, **visit us online at www.osha.gov** **OR call your local OSHA office.** We'll be happy to help you.



An Overview: Recording Work-Related Injuries and Illnesses

The Occupational Safety and Health (OSH) Act of 1970 requires certain employers to prepare and maintain records of work-related injuries and illnesses. Use these definitions when you classify cases on the Log. OSHA's recordkeeping regulation (see 29 CFR Part 1904) provides more information about the definitions below.

The *Log of Work-Related Injuries and Illnesses* (Form 300) is used to classify work-related injuries and illnesses and to note the extent and severity of each case. When an incident occurs, use the *Log* to record specific details about what happened and how it happened.

The *Summary* — a separate form (Form 300A) — shows the totals for the year in each category. At the end of the year, post the *Summary* in a visible location so that your employees are aware of the injuries and illnesses occurring in their workplace.

Employers must keep a *Log* for each establishment or site. If you have more than one establishment, you must keep a separate *Log* and *Summary* for each physical location that is expected to be in operation for one year or longer.

Note that your employees have the right to review your injury and illness records. For more information, see 29 Code of Federal Regulations Part 1904.35, *Employee Involvement*.

Cases listed on the *Log of Work-Related Injuries and Illnesses* are not necessarily eligible for workers' compensation or other insurance benefits. Listing a case on the *Log* does not mean that the employer or worker was at fault or that an OSHA standard was violated.

When is an injury or illness considered work-related?

An injury or illness is considered work-related if an event or exposure in the work environment caused or contributed to the condition or significantly aggravated a preexisting condition. Work-relatedness is

presumed for injuries and illnesses resulting from events or exposures occurring in the workplace, unless an exception specifically applies. See 29 CFR Part 1904.5(b)(2) for the exceptions. The work environment includes the establishment and other locations where one or more employees are working or are present as a condition of their employment. See 29 CFR Part 1904.5(b)(1).

Which work-related injuries and illnesses should you record?

Record those work-related injuries and illnesses that result in:

- ▼ death,
- ▼ loss of consciousness,
- ▼ days away from work,
- ▼ restricted work activity or job transfer, or
- ▼ medical treatment beyond first aid.

You must also record work-related injuries and illnesses that are significant (as defined below) or meet any of the additional criteria listed below.

You must record any significant work-related injury or illness that is diagnosed by a physician or other licensed health care professional. You must record any work-related case involving cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum. See 29 CFR 1904.7.

What are the additional criteria?
You must record the following conditions when they are work-related:

- ▼ any needlestick injury or cut from a sharp object that is contaminated with another person's blood or other potentially infectious material;
- ▼ any case requiring an employee to be medically removed under the requirements of an OSHA health standard;
- ▼ tuberculosis infection as evidenced by a positive skin test or diagnosis by a physician or other licensed health care professional after exposure to a known case of active tuberculosis.
- ▼ an employee's hearing test (audiogram) reveals 1) that the employee has experienced a Standard Threshold Shift (STS) in hearing in one or both ears (averaged at 2000, 3000, and 4000 Hz) and 2) the employee's total hearing level is 25 decibels (dB) or more above audiometric zero (also averaged at 2000, 3000, and 4000 Hz) in the same ear(s) as the STS.

What is medical treatment?

Medical treatment includes managing and caring for a patient for the purpose of combating disease or disorder. The following are not considered medical treatments and are NOT recordable:

- ▼ visits to a doctor or health care professional solely for observation or counseling;

What do you need to do?

1. Within 7 calendar days after you receive information about a case, decide if the case is recordable under the OSHA recordkeeping requirements.

2. Determine whether the incident is a new case or a recurrence of an existing one.

3. Establish whether the case was work-related.

4. If the case is recordable, decide which form you will fill out as the injury and illness incident report.

You may use *OSHA's 301: Injury and Illness Incident Report* or an equivalent form. Some state workers compensation, insurance, or other reports may be acceptable substitutes, as long as they provide the same information as the OSHA 301.

How to work with the Log

1. Identify the employee involved unless it is a privacy concern case as described below.

2. Identify when and where the case occurred.

3. Describe the case, as specifically as you can.

4. Classify the seriousness of the case by recording the **most serious outcome** associated with the case, with column G (Death) being the most serious and column J (Other recordable cases) being the least serious.

5. Identify whether the case is an injury or illness. If the case is an injury, check the injury category. If the case is an illness, check the appropriate illness category.



- ▼ diagnostic procedures, including administering prescription medications that are used solely for diagnostic purposes; and
- ▼ any procedure that can be labeled first aid. (See below for more information about first aid.)

What is first aid?

If the incident required only the following types of treatment, consider it first aid. Do NOT record the case if it involves only:

- ▼ using non-prescription medications at non-prescription strength;
- ▼ administering tetanus immunizations;
- ▼ cleaning, flushing, or soaking wounds on the skin surface;
- ▼ using wound coverings, such as bandages, BandAids™, gauze pads, etc., or using SteriStrips™ or butterfly bandages.
- ▼ using hot or cold therapy;
- ▼ using any totally non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc.;
- ▼ using temporary immobilization devices while transporting an accident victim (splints, slings, neck collars, or back boards).
- ▼ drilling a fingernail or toenail to relieve pressure, or draining fluids from blisters;
- ▼ using eye patches;
- ▼ using simple irrigation or a cotton swab to remove foreign bodies not embedded in or adhered to the eye;
- ▼ using irrigation, tweezers, cotton swab or other simple means to remove splinters or foreign material from areas other than the eye;

- ▼ using finger guards;
- ▼ using massages;
- ▼ drinking fluids to relieve heat stress

How do you decide if the case involved restricted work?

Restricted work activity occurs when, as the result of a work-related injury or illness, an employer or health care professional keeps, or recommends keeping, an employee from doing the routine functions of his or her job or from working the full workday that the employee would have been scheduled to work before the injury or illness occurred.

How do you count the number of days of restricted work activity or the number of days away from work?

Count the number of calendar days the employee was on restricted work activity or was away from work as a result of the recordable injury or illness. Do not count the day on which the injury or illness occurred in this number. Begin counting days from the day after the incident occurs. If a single injury or illness involved both days away from work and days of restricted work activity, enter the total number of days for each. You may stop counting days of restricted work activity or days away from work once the total of either or the combination of both reaches 180 days.

Under what circumstances should you NOT enter the employee's name on the OSHA Form 300?

You must consider the following types of injuries or illnesses to be privacy concern cases:

- ▼ an injury or illness to an intimate body part or to the reproductive system,
- ▼ an injury or illness resulting from a sexual assault,
- ▼ a mental illness,
- ▼ a case of HIV infection, hepatitis, or tuberculosis,
- ▼ a needlestick injury or cut from a sharp object that is contaminated with blood or other potentially infectious material (see 29 CFR Part 1904.8 for definition), and
- ▼ other illnesses, if the employee independently and voluntarily requests that his or her name not be entered on the log.

You must not enter the employee's name on the OSHA 300 Log for these cases. Instead, enter "privacy case" in the space normally used for the employee's name. You must keep a separate, confidential list of the case numbers and employee names for the establishment's privacy concern cases so that you can update the cases and provide information to the government if asked to do so.

If you have a reasonable basis to believe that information describing the privacy concern case may be personally identifiable even though the employee's name has been omitted, you may use discretion in describing the injury or illness on both the OSHA 300 and 301 forms. You must enter enough information to identify the cause of the incident and the general severity of

the injury or illness, but you do not need to include details of an intimate or private nature.

What if the outcome changes after you record the case?

If the outcome or extent of an injury or illness changes after you have recorded the case, simply draw a line through the original entry or, if you wish, delete or white-out the original entry. Then write the new entry where it belongs. Remember, you need to record the most serious outcome for each case.

Classifying injuries

An injury is any wound or damage to the body resulting from an event in the work environment.

Examples: Cut, puncture, laceration, abrasion, fracture, bruise, contusion, chipped tooth, amputation, insect bite, electrocution, or a thermal, chemical, electrical, or radiation burn. Sprain and strain injuries to muscles, joints, and connective tissues are classified as injuries when they result from a slip, trip, fall or other similar accidents.





Classifying illnesses

Skin diseases or disorders

Skin diseases or disorders are illnesses involving the worker's skin that are caused by work exposure to chemicals, plants, or other substances.

Examples: Contact dermatitis, eczema, or rash caused by primary irritants and sensitizers or poisonous plants; oil acne; friction blisters, chrome ulcers; inflammation of the skin.

Respiratory conditions

Respiratory conditions are illnesses associated with breathing hazardous biological agents, chemicals, dust, gases, vapors, or fumes at work.

Examples: Silicosis, asbestosis, pneumonitis, pharyngitis, rhinitis or acute congestion; farmer's lung, beryllium disease, tuberculosis, occupational asthma, reactive airways dysfunction syndrome (RADS), chronic obstructive pulmonary disease (COPD), hypersensitivity pneumonitis, toxic inhalation injury, such as metal fume fever, chronic obstructive bronchitis, and other pneumoconioses.

Poisoning

Poisoning includes disorders evidenced by abnormal concentrations of toxic substances in blood, other tissues, other bodily fluids, or the breath that are caused by the ingestion or absorption of toxic substances into the body.

Examples: Poisoning by lead, mercury,

cadmium, arsenic, or other metals; poisoning by carbon monoxide, hydrogen sulfide, or other gases; poisoning by benzene, benzol, carbon tetrachloride, or other organic solvents; poisoning by insecticide sprays, such as parathion or lead arsenate; poisoning by other chemicals, such as formaldehyde.

Hearing Loss

Noise-induced hearing loss is defined for recordkeeping purposes as a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more in either ear at 2000, 3000 and 4000 hertz, and the employee's total hearing level is 25 decibels (dB) or more above audiometric zero (also averaged at 2000, 3000, and 4000 hertz) in the same ear(s).

All other illnesses

All other occupational illnesses.

Examples: Heatstroke, sunstroke, heat exhaustion, heat stress and other effects of environmental heat; freezing, frostbite, and other effects of exposure to low temperatures; decompression sickness; effects of ionizing radiation (isotopes, x-rays, radium); effects of nonionizing radiation (welding flash, ultra-violet rays, lasers); anthrax; bloodborne pathogenic diseases, such as AIDS, HIV, hepatitis B or hepatitis C; brucellosis; malignant or benign tumors; histoplasmosis; coccidioidomycosis.

When must you post the Summary?

You must post the *Summary* only — not the *Log* — by February 1 of the year following the year covered by the form and keep it posted until April 30 of that year.

How long must you keep the Log and Summary on file?

You must keep the *Log* and *Summary* for 5 years following the year to which they pertain.

Do you have to send these forms to OSHA at the end of the year?

No. You do not have to send the completed forms to OSHA unless specifically asked to do so.

How can we help you?

If you have a question about how to fill out the *Log*,

- visit us online at www.osha.gov or
- call your local OSHA office.

Optional

Calculating Injury and Illness Incidence Rates

What is an incidence rate?

An incidence rate is the number of recordable injuries and illnesses occurring among a given number of full-time workers (usually 100 full-time workers) over a given period of time (usually one year). To evaluate your firm's injury and illness experience over time or to compare your firm's experience with that of your industry as a whole, you need to compute your incidence rate. Because a specific number of workers and a specific period of time are involved, these rates can help you identify problems in your workplace and/or progress you may have made in preventing work-related injuries and illnesses.

How do you calculate an incidence rate?

You can compute an occupational injury and illness incidence rate for all recordable cases or for cases that involved days away from work for your firm quickly and easily. The formula requires that you follow instructions in paragraph (a) below for the total recordable cases or those in paragraph (b) for cases that involved days away from work, and for both rates the instructions in paragraph (c).

(a) To find out the total number of recordable injuries and illnesses that occurred during the year, count the number of line entries on your OSHA Form 300, or refer to the OSHA Form 300A and sum the entries for columns (G), (H), (I), and (J).

(b) To find out the number of injuries and illnesses that involved days away from work, count the number of line entries on your OSHA Form 300 that received a check mark in column (H), or refer to the entry for column

(H) on the OSHA Form 300A.

(c) The number of hours all employees actually worked during the year. Refer to OSHA Form 300A and optional worksheet to calculate this number.

You can compute the incidence rate for all recordable cases of injuries and illnesses using the following formula:

$$\text{Total number of injuries and illnesses} \times 200,000 \div \text{Number of hours worked by all employees} = \text{Total recordable case rate}$$

(The 200,000 figure in the formula represents the number of hours 100 employees working 40 hours per week, 50 weeks per year would work, and provides the standard base for calculating incidence rates.)

You can compute the incidence rate for recordable cases involving days away from work, days of restricted work activity or job transfer (DART) using the following formula:

$$\frac{\text{Number of entries in column H} + \text{Number of entries in column I} \times 200,000}{\text{Number of hours worked by all employees}} = \text{DART incidence rate}$$

You can use the same formula to calculate incidence rates for other variables such as cases involving restricted work activity (column (I) on Form 300A), cases involving skin disorders (column (M-2) on Form 300A), etc. Just substitute the appropriate total for these cases, from Form 300A, into the formula in place of the total number of injuries and illnesses.

What can I compare my incidence rate to?

The Bureau of Labor Statistics (BLS) conducts a survey of occupational injuries and illnesses each year and publishes incidence rate data by

various classifications (e.g., by industry, by employer size, etc.). You can obtain these published data at www.bls.gov/iif or by calling a BLS Regional Office.

Worksheet

Total number of injuries and illnesses	X	200,000	÷	=	Total recordable case rate
<input type="text"/>		<input type="text"/>			<input type="text"/>
Number of hours worked by all employees					
<input type="text"/>		<input type="text"/>			<input type="text"/>
Number of entries in Column H + Column I	X	200,000	÷	=	DART incidence rate
<input type="text"/>		<input type="text"/>			<input type="text"/>
Number of hours worked by all employees					
<input type="text"/>		<input type="text"/>			<input type="text"/>



Summary of Work-Related Injuries and Illnesses

Year 20 _____



All establishments covered by Part 1904 must complete this Summary page, even if no work-related injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete and accurate before completing this summary.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the Log. If you had no cases, write "0."

Employees, former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR Part 1904.35, in OSHA's recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
(G) _____	(H) _____	(I) _____	(J) _____

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
(K) _____	(L) _____

Injury and Illness Types

Total number of . . . (M)	(4) Poisonings _____
(1) Injuries _____	(5) Hearing loss _____
(2) Skin disorders _____	(6) All other illnesses _____
(3) Respiratory conditions _____	

Post this Summary page from February 1 to April 30 of the year following the year covered by the form.

Public reporting burden for this collection of information is estimated to average 58 minutes per response, including time to review the instructions, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any other aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistical Analysis, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed forms to this office.

Establishment information

Your establishment name _____
 Street _____
 City _____ State _____ ZIP _____
 Industry description (e.g., *Manufacture of motor truck trailers*) _____
 Standard Industrial Classification (SIC), if known (e.g., 3715) _____
 OR _____
 North American Industrial Classification (NAICS), if known (e.g., 336212) _____

Employment information (If you don't have these figures, see the Worksheet on the back of this page to estimate.)

Annual average number of employees _____
 Total hours worked by all employees last year _____

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

Company executive _____ Title _____
 (_____) _____ / /
 Phone _____ Date _____

Optional

Worksheet to Help You Fill Out the Summary

At the end of the year, OSHA requires you to enter the average number of employees and the total hours worked by your employees on the summary. If you don't have these figures, you can use the information on this page to estimate the numbers you will need to enter on the Summary page at the end of the year.

How to figure the average number of employees who worked for your establishment during the year:

- Add** the total number of employees your establishment paid in all pay periods during the year. Include all employees: full-time, part-time, temporary, seasonal, salaried, and hourly.
The number of employees paid in all pay periods = **1** _____
- Count** the number of pay periods your establishment had during the year. Be sure to include any pay periods when you had no employees.
The number of pay periods during the year = **2** _____
- Divide** the number of employees by the number of pay periods.
 $\frac{\mathbf{1}}{\mathbf{2}} = \mathbf{3}$ _____
- Round the answer** to the next highest whole number. Write the rounded number in the blank marked *Annual average number of employees*.
The number rounded = **4** _____

For example, Acme Construction figured its average employment this way:

For pay period...	Acme paid this number of employees...	
1	10	Number of employees paid = 830 1
2	0	
3	15	Number of pay periods = 26 2
4	30	
5	40	$830 \div 26 = 31.92$ 3
▼	▼	26
24	20	31.92 rounds to 32 4
25	15	
26	+10	32 is the annual average number of employees
	830	

How to figure the total hours worked by all employees:

Include hours worked by salaried, hourly, part-time and seasonal workers, as well as hours worked by other workers subject to day to day supervision by your establishment (e.g., temporary help services workers).

Do not include vacation, sick leave, holidays, or any other non-work time, even if employees were paid for it. If your establishment keeps records of only the hours paid or if you have employees who are not paid by the hour, please estimate the hours that the employees actually worked.

If this number isn't available, you can use this optional worksheet to estimate it.

Optional Worksheet

_____ **Find** the number of full-time employees in your establishment for the year.

X _____ **Multiply** by the number of work hours for a full-time employee in a year.

_____ This is the number of full-time hours worked.

+ _____ **Add** the number of any overtime hours as well as the hours worked by other employees (part-time, temporary, seasonal)

_____ **Round** the answer to the next highest whole number. Write the rounded number in the blank marked *Total hours worked by all employees last year*.



OSHA's Form 301 Injury and Illness Incident Report

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary*, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

Completed by _____
 Title _____
 Phone (____) _____ Date ____/____/____

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.



U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

Information about the employee

- 1) Full name _____
- 2) Street _____
 City _____ State _____ ZIP _____
- 3) Date of birth ____/____/____
- 4) Date hired ____/____/____
- 5) Male
 Female

Information about the physician or other health care professional

- 6) Name of physician or other health care professional _____
 Facility _____
 Street _____
 City _____ State _____ ZIP _____
- 7) If treatment was given away from the worksite, where was it given?
 Yes
 No
- 8) Was employee treated in an emergency room?
 Yes
 No
- 9) Was employee hospitalized overnight as an in-patient?
 Yes
 No

Information about the case

- 10) Case number from the Log _____ (Transfer the case number from the Log after you record the case.)
- 11) Date of injury or illness ____/____/____ AM / PM
- 12) Time employee began work _____ AM / PM
- 13) Time of event _____ AM / PM Check if time cannot be determined
- 14) **What was the employee doing just before the incident occurred?** Describe the activity, as well as the tools, equipment, or material the employee was using. Be specific. *Examples:* "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."
- 15) **What happened?** Tell us how the injury occurred. *Examples:* "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."
- 16) **What was the injury or illness?** Tell us the part of the body that was affected and how it was affected; be more specific than "hurt," "pain," or "sore." *Examples:* "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."
- 17) **What object or substance directly harmed the employee?** *Examples:* "concrete floor"; "chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank.
- 18) **If the employee died, when did death occur?** Date of death ____/____/____

If You Need Help...

If you need help deciding whether a case is recordable, or if you have questions about the information in this package, feel free to contact us. We'll gladly answer any questions you have.

▼ Visit us online at www.osha.gov

▼ Call your OSHA Regional office and ask for the recordkeeping coordinator

or

▼ Call your State Plan office

Federal Jurisdiction

Region 1 - 617 / 565-9860
Connecticut; Massachusetts; Maine; New Hampshire; Rhode Island

Region 2 - 212 / 337-2378
New York; New Jersey

Region 3 - 215 / 861-4900
DC; Delaware; Pennsylvania; West Virginia

Region 4 - 404 / 562-2300
Alabama; Florida; Georgia; Mississippi

Region 5 - 312 / 353-2220
Illinois; Ohio; Wisconsin

Region 6 - 214 / 767-4731
Arkansas; Louisiana; Oklahoma; Texas

Region 7 - 816 / 426-5861
Kansas; Missouri; Nebraska

Region 8 - 303 / 844-1600
Colorado; Montana; North Dakota; South Dakota

Region 9 - 415 / 975-4310

Region 10 - 206 / 553-5930
Idaho

State Plan States

Alaska - 907 / 269-4957

Arizona - 602 / 542-5795

California - 415 / 703-5100

*Connecticut - 860 / 566-4380

Hawaii - 808 / 586-9100

Indiana - 317 / 232-2688

Iowa - 515 / 281-3661

Kentucky - 502 / 564-3070

Maryland - 410 / 767-2371

Michigan - 517 / 322-1848

Minnesota - 651 / 284-5050

Nevada - 702 / 486-9020

*New Jersey - 609 / 984-1389

New Mexico - 505 / 827-4230

*New York - 518 / 457-2574

North Carolina - 919 / 807-2875

Oregon - 503 / 378-3272

Puerto Rico - 787 / 754-2172

South Carolina - 803 / 734-9669

Tennessee - 615 / 741-2793

Utah - 801 / 530-6901

Vermont - 802 / 828-2765

Virginia - 804 / 786-6613

Virgin Islands - 340 / 772-1315

Washington - 360 / 902-5601

Wyoming - 307 / 777-7786

*Public Sector only





Have questions?

If you need help in filling out the *Log* or *Summary*, or if you have questions about whether a case is recordable, contact us. We'll be happy to help you. You can:

- ▼ Visit us online at: www.osha.gov
- ▼ Call your regional or state plan office. You'll find the phone number listed inside this cover.



This form can be completed and submitted online at **ohiobwc.com**

Report your injury by completing all three sections of this form

- 1 Complete as much of all three sections of this form as possible to reduce the time necessary in determining the claim. If this form is completed by the injured worker at the first visit to a medical provider, the injured worker may give the FROI to the provider to complete the treatment information section. The provider can then submit the FROI to the MCO.
- 2 Deliver, mail or fax the completed document to your employer or your employer's managed care organization (MCO).
- 3 If you do not know your employer's MCO, contact BWC at **1-800-OHIOBWC** and follow the prompts, or use the MCO on BWC's Web site at **ohiobwc.com**.
- 4 If you are unable to determine your MCO, mail or fax this form to the BWC customer service office closest to your home. For information on your local customer service office, please visit **ohiobwc.com**, or call **1-800-OHIOBWC**.

Injured workers employed by a self-insuring employer

- Complete this form and give to your employer.
- Your employer should be able to tell you if he or she is a self-insuring employer.
- If your employer is self-insuring and you file this information with BWC, processing delays may occur.

For assistance in completing this form, call your BWC customer service office Monday through Friday, 8 a.m. – 4:45 p.m.

Cambridge

61501 Southgate Road
Cambridge, OH 43725
Phone: (740) 435-4200
Fax: (866) 281-9351

Canton

400 Third St., SE
Canton, OH 44702-1102
Phone: (330) 438-0638
Toll free: (800) 713-0991
Fax: (866) 281-9352

Cleveland

615 Superior Ave. W.
Cleveland, OH 44113-1889
Phone: (216) 787-3050
Toll free: (800) 821-7075
Fax: (866) 336-8345

Columbus

30 W. Spring St.
Columbus, OH 43215-2256
Phone: (614) 728-5416
Fax: (866) 336-8352

Dayton

3401 Park Center Drive
Dayton, OH 45413-0910
Phone: (937) 264-5000
Fax: (866) 281-9356

Garfield Heights

4800 E. 131 St., Suite A
Garfield Heights, OH 44105
Phone: (216) 584-0100
Toll free: (800) 224-6446
Fax: (866) 457-0590

Governor's Hill

8650 Governor's Hill Drive
Cincinnati, OH 45249
Phone: (513) 583-4400
Fax: (866) 281-9357

Hamilton

1 Renaissance Center
345 High St.
Hamilton, OH 45011
Phone: (513) 785-4500
Fax: (866) 336-8343

Lima

2025 E. Fourth St.
Lima, OH 45804-4101
Phone: (419) 227-3127
Toll free: (888) 419-3127
Fax: (866) 336-8346

Logan

P.O. Box 630
1225 W. Hunter St.
Logan, OH 43138-0630
Phone: (740) 385-5607
Toll free: (800) 385-5607
Fax: (866) 336-8348

Mansfield

240 Tappan Drive, N.
Mansfield, OH 44906-8051
Phone: (419) 747-4090
Fax: (866) 336-8350

Portsmouth

P.O. Box 1307
1005 Fourth St.
Portsmouth, OH 45662-1307
Phone: (740) 353-2187
Fax: (866) 336-8353

Springfield

P.O. Box 1467
1 S. Limestone St. L-5
Springfield, OH 45501-1467
Phone: (937) 327-1425
Fax: (866) 457-0593

Toledo

P.O. Box 794
1 Government Center, Suite 1136
Toledo, OH 43697-0794
Phone: (419) 245-2700
Fax: (866) 457-0594

Youngstown

242 Federal Plaza, W., Suite 200
Youngstown, OH 44501-1877
Phone: (330) 797-5500
Toll free: (800) 551-6446
Fax: (866) 457-0596

Completion instructions
(continued)

Last name, first name, middle initial		Social Security number		Marital status <input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Divorced <input type="checkbox"/> Separated <input type="checkbox"/> Widowed		Date of birth		
Home mailing address ①				Sex <input type="checkbox"/> Male <input type="checkbox"/> Female		Number of dependents		
City		State	9-digit ZIP code		Country if different from USA		Department name ②	
Wage rate \$ _____ Per. ③ <input type="checkbox"/> Hour <input type="checkbox"/> Month <input type="checkbox"/> Week		What days of the week do you usually work? ④ <input type="checkbox"/> Sun <input type="checkbox"/> Mon <input type="checkbox"/> Tues <input type="checkbox"/> Wed <input type="checkbox"/> Thur <input type="checkbox"/> Fri <input type="checkbox"/> Sat				Regular work From _____ To _____ ④		
Have you been offered or do you expect to receive payment or wages for this claim from anyone other than the Ohio Bureau of Workers' Compensation? <input type="checkbox"/> YES <input type="checkbox"/> NO If yes, please explain. ⑤						Occupation or job title ⑥		
Employer name ⑦								
Mailing address (number and street, city or town, state, ZIP code and county)								
Location, if different from mailing address								
Was place of accident or exposure on employer's premises? <input type="checkbox"/> Yes <input type="checkbox"/> No If no, give accident location, street address, city, state and ZIP code.								
Date of injury/disease ⑧		Time of injury <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.		If fatal, give date of death		Time employee began work <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	Date last worked ⑨	Date returned to work ⑩
Date hired		State where hired ⑪		Date employer notified ⑫				
Description of accident (Describe the sequence of events that directly injured the employee, or caused the disease or death) ⑬						Type of injury/disease and part(s) of body affected (for example: sprain of lower left back, etc.) ⑭		
Benefit application/medical release – I am applying for recognition of my claim under the Ohio Workers' Compensation Act for work-related injuries that I did not purposely inflict. I request payment for compensation and/or medical expenses as allowable. Direct payment(s) to the providers of any medical services are authorized. I understand that I am allowing any provider who attends to, treats or examines me to release all medical, psychological and/or psychiatric information that is causally or historically related to physical or mental injuries relevant to the administration of my workers' compensation claim to the Ohio Bureau of Workers' Compensation, the Industrial Commission of Ohio, the employer listed in this claim, that employer's managed care organization and any authorized representatives. I further authorize the Ohio Rehabilitation Services Commission to release information about my physical, mental, vocational and social conditions that is causally or historically related to physical or mental injuries relevant to issues necessary for the administration of my workers' compensation claim to the aforementioned parties.								
Injured worker signature ⑮		Date		E-mail address		Telephone number () ()	Work number () ()	

Injured worker and injury/disease/death info.

- ① Home address: Enter the home address where the injured worker lives. Include the apartment number, if applicable.
 - If the post office does not deliver mail to the home address, list the mailing address instead of the home address.
- ② Department name: Enter the injured worker's department or area name where he/she normally reports for work.
- ③ Wage rate: Enter the injured worker's rate of pay, and then select how often it is received. (If the pay rate being reported is not hourly, report the gross amount.)
 - If eight or more days of work will be missed, BWC needs wage information for the 52 weeks prior to the date of injury. Submit wage information using employer payroll reports, wage statement (BWC form C-94-A), W-2s, etc.
- ④ What days of the week do you usually work? What are your regular work hours: Enter the days and hours the injured worker normally works.
 - If the days worked vary from week to week, list the number of hours worked in an average week.
- ⑤ Wages: If you received wages during disability, please explain.
- ⑥ Occupation or job title: Enter the injured worker's type of occupation or actual job title at the time of injury, occupational disease or death.
- ⑦ Employer name: Enter the name of the injured worker's employer at the time of the injury, occupational disease or death.
- ⑧ Date of injury/disease: Enter the date injured worker was injured. OR
If the injured worker contracted an occupational disease, determine which of the following happened most recently:
 - The occupational disease was diagnosed by a medical provider;
 - The first medical treatment;
 - The injured worker first quit work, due to the occupational disease.

Enter this as the date of occupational disease.
- ⑨ Date last worked: Enter the last day worked as a result of this injury, occupational disease or death.
- ⑩ Date returned to work: Enter the date the injured worker returned to work after the injury or occupational disease.
- ⑪ State where hired: Enter the state where the injured worker was hired by the employer listed on this application.
- ⑫ Date employer notified: Enter the date the employer was notified of the injury, occupational disease or death.
- ⑬ Description of accident: Describe in detail the events that caused the injury, occupational disease or death. Attach additional sheets, if necessary.
- ⑭ Type of injury/disease and part of body affected: Describe the nature of the injury, occupational disease or death. Indicate the part(s) of body injured, affected or that caused the death.

Examples:

 - Laceration of first toe, left foot;
 - Sprain of lower right back; etc.
- ⑮ Injured worker signature (injured workers only): Please read the Benefit /application/medical release information before signing and dating this form.





Tear off this sheet and return the completed form to your employer's managed care organization (MCO) or to your local BWC customer service office.

By signing this form, I:

- Elect to only receive compensation and/or benefits that are provided for in this claim under Ohio workers' compensation laws;
• Waive and release my right to receive compensation and benefits under the workers' compensation laws of another state for the injury or occupational disease, or death resulting from an injury or occupational disease, for which I am filing this claim;
• Agree that I have not and will not file a claim in another state for the injury or occupational disease or death resulting from an injury or occupational disease for which I am filing this claim;
• Confirm that I have not received compensation and/or benefits under the workers' compensation laws of another state for this claim, and that I will notify BWC immediately upon receiving any compensation or benefits from any source for this claim.

WARNING:

Any person who obtains compensation from BWC or self-insuring employers by knowingly misrepresenting or concealing facts, making false statements or accepting compensation to which he or she is not entitled, is subject to felony criminal prosecution for fraud.

(R.C. 2913.48)

Injured worker and injury/disease/death info.

Form section for injured worker and injury/disease/death info, including fields for last name, first name, middle initial, Social Security number, marital status, date of birth, home mailing address, sex, city, state, 9-digit ZIP code, country, wage rate, and occupation or job title.

Benefit application/medical release - I am applying for a claim under the Ohio Workers' Compensation Act for work-related injuries that I did not purposely inflict. I affirm that I elect to receive compensation and benefits under the Ohio workers' compensation laws for my claim, and I waive and release my right to file for and receive compensation and benefits under the laws of any other state for this claim.

Form section for injured worker signature, date, e-mail address, telephone number, and work number.

Treatment info.

Form section for treatment info, including health-care provider name, telephone number, fax number, initial treatment date, street address, city, state, 9-digit ZIP code, diagnosis(es), and health-care provider signature.

Employer info.

Form section for employer info, including employer policy number, telephone number, fax number, e-mail address, federal ID number, manual number, and employer signature and title.



Completion instructions

(continued)

Treatment info.	Health-care provider name	Telephone number ()	Fax number ()	Initial treatment date
	Street address	City		State 9-digit ZIP code
	Diagnosis(es): Include ICD code(s) ①			
	Will the incident cause the injured worker to miss eight or more days of work? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is the injury causally related to the industrial incident? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Health-care provider signature ③			11-digit BWC provider number ④	Date

Treatment info.

- ① Indicate the diagnosis and ICD codes for conditions being treated as a result of the injury.
- ② Indicate the treating provider's medical opinion that the injury sustained is causally related to the industrial incident, that the injury could result from the method (manner) of the accident, as described by the injured worker. It must be clear that the diagnosis in all probability occurred as a result of the injury.
- ③ Signature of the health-care provider completing this form.
- ④ Enter the physician's or health-care provider's 11-digit BWC-assigned provider number.

Employer info.	① Employer policy number	Check if <input type="checkbox"/> Employer is self-insuring <input type="checkbox"/> Injured worker is owner/partner/member of firm
	Telephone number ()	Fax number ()
	E-mail address	Federal ID number
	Manual number ②	
	Was employee treated in an emergency room? <input type="checkbox"/> Yes <input type="checkbox"/> No	Was employee hospitalized as an inpatient? <input type="checkbox"/> Yes <input type="checkbox"/> No
	If treatment was given away from work site, provide the facility name, street address, city, state and ZIP code	
<input type="checkbox"/> Certification - The employer certifies that the facts in this application are correct and valid.		<input type="checkbox"/> Rejection - The employer rejects the validity of this claim for the reason(s) listed below:
<input type="checkbox"/> For self-insuring employers only <input type="checkbox"/> Clarification - The employer clarifies and allows the claim for the condition(s) below:		<input type="checkbox"/> Clarification - The employer clarifies and allows the claim for the condition(s) below:
Employer: signature and title		Date
		OSHA case number ⑥

Employer info.

- ① Enter the employer's BWC-assigned policy number, which is located on the BWC certificate of coverage.
 - ② Enter the four-digit code that indicates the injured worker's job classification, located on the semiannual payroll report.
 - If you do not know the injured worker's manual number, call **1-800-OHIOBWC** and follow the prompts.
 - ③ If certification is selected and the claim is allowed, it will promptly be paid. Employers certifying a claim waive both the notice of receipt and notice of first order of compensation.
 - ④ If rejection is selected, use the space provided to list the reasons for rejection. Attach additional sheets, if necessary.
 - ⑤ Self-insuring employers that choose to clarify certification may use the space provided. Attach additional sheet, if necessary.
 - ⑥ If this is an OSHA-reportable injury, include the case number assigned by the employer. This form meets OSHA 301 requirements and may be used in lieu of the OSHA 301 when reporting recordable injuries and illnesses to the federal government.
- Note:**
If your employee misses eight or more days of work, BWC will need wage information for the 52 weeks prior to the date of injury. Submit wage information using employer payroll reports, wage statement (BWC form C-94-A), W-2s, etc.

POWER PRESS POINT OF OPERATION INJURY REPORT

1910.217(G)

Mailing address at which accident occurred:

Company Name _____
Address _____
City _____ State _____ Zip _____

Name of injured employee: _____

Injury sustained: _____

Task being performed: ___operation ___set-up ___maintenance ___other _____

Type of feeding:

_____ Manual with hand in point of operation	_____ Automatic
_____ Manual with hand not in point of operation	_____ Semi Automatic
	_____ Other _____

Description of press involved:

Type of clutch
_____ Full revolution
_____ Part revolution
_____ Direct drive

_____ Sweeps	_____ Two-hand control
_____ Pull-out	_____ Two-hand trip
	_____ Other _____

Means used to actuate press:
_____ Foot trip _____ Foot control
_____ Hand control _____ Other _____

Number of operators required for this operation: _____

Number of operators provided with control and safeguard: _____

Alleged cause of accident:

(Repeat of press, Removing stuck part, Safeguard not provided, Safeguard failure, Operation error, Safeguard not used)

Describe: _____

* Within 30 days of the occurrence, all Point of Operation injuries to operators or other employees shall be reported to Director of the Directorate of Safety Standards Program, OSHA, U.S. Department of Labor, 200 Constitution Avenue N.W., Washington, D.C. 20210

INSTRUCTIONS

OSHA 301 FORM COMPATIBILITY--When fully completed, this report is believed to satisfy the requirements of the OSHA 301 form.

COMPLETION OF THIS REPORT--Parts 1 and 2 may be filled out by office personnel or other staff assigned this function. Parts 3, 4 and 5 **must** be completely filled out by the first line supervisor, in coordination with plant manager and safety director.

PROCEDURE FOR COMPLETING PART 3--ACCIDENT TREE

A. Fill in the top blocks of the tree.

Describe the NATURE of the injury or illness.

This could be a strain, sprain, laceration, contusion, abrasion, carpal tunnel syndrome, and so forth. Write in the space provided at the top of the tree.

Determine the PART OF THE BODY AFFECTED (such as right index finger, shoulder, lower back, and so forth.) and place this information in the adjacent space provided at the top of the tree.

If these specific details are not fully known at this time, do not wait to perform the investigation! Fill out as much as possible and continue.

If investigating accident or near miss, write *none* in "Nature of Injury or Illness" and "Part of Body Affected" blocks, and continue to next row of tree.

B. Fill in the next row of the tree.

1. Operation--Location

Where is the work being performed? Example: Working in assembly area.

2. Operation Task

On a larger scale, what specific operation is being performed? Examples: Milling keyway in shaft; Stocking shelves.

3. Employee Task

What specific task was the employee performing? Examples: Employee lifting box; Employee was fastening bolt.

4. Employee Body Position/Activity

Briefly describe the position required by the activity that relates to the accident, injury or illness. Examples: Wrist flexed forward; Hands grasping box.

5. Equipment or Substance

What is the equipment or substance which was directly involved in the accident, injury or illness? Examples: The machine or object struck against; The vapor or contaminant inhaled or swallowed; The object lifted, pulled.

6. Preceding Situation or Event

Determine important event(s) that led to the accident, injury, or illness. These may be considered as "triggering events", situations, or circumstances necessary for the accident to occur.

7. Type of Accident

What general type of accident occurred? Examples: Fall off a platform; Slipped on oil; Struck by machine tool; Contact with electricity; Exposure to hazardous substances.

C. Trace each factor in more detail.

Work from each of the factors identified above. Ask why each of the factors is necessary, or why they occurred. Under each factor, write the key words describing "why", and draw a line to connect the two. It is possible for there to be more than one reason "why" under each factor, so be sure to include all that you discover.

D. Repeat the process--build the tree.

The process in step three can be repeated until all questions are answered for each path of the tree. Dead ends are either unanswered questions that require additional investigation or pathways that have been resolved as far as practical.



ACCIDENT ANALYSIS REPORT

PART 1 IDENTIFICATION INFORMATION

Employee Name _____
 Date of Accident _____ Time _____ AM PM
 Occupation _____ Shift _____
 Department _____ ID _____

PART 2 SUPPLEMENTARY INFORMATION

Company _____
 Mailing Address _____

 City _____ State _____ Zip Code _____
 Telephone (____) _____
 Establishment Location (if different from above) _____

Accident Location Same as establishment? On premises? (Check if applies)

Employee Address _____

 City _____ State _____ Zip Code _____

Telephone (____) _____ Social Security Number _____

Sex _____ Age _____ Date of Birth _____

Was injured person performing regular job at time of accident? Yes No

Length of service: With employer _____ On this job _____

Time shift started _____ AM PM Overtime? Yes No

Name and address of Physician _____

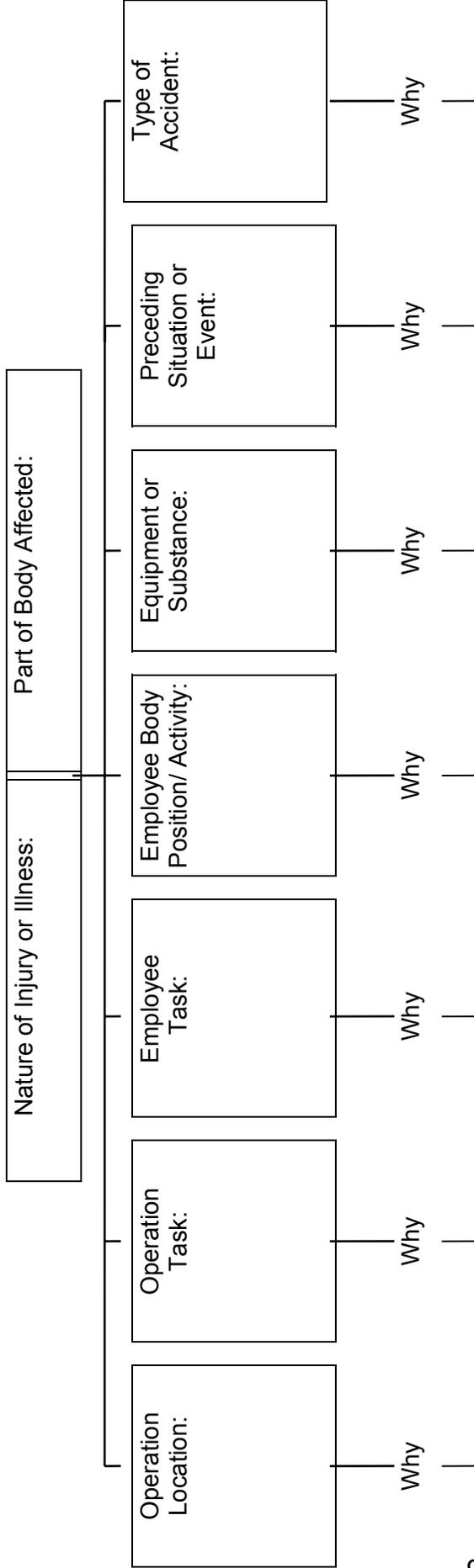
_____ City _____ State _____ Zip Code _____

If hospitalized, name and address of hospital _____

_____ City _____ State _____ Zip Code _____

Fatality? Yes No If Yes, date of death _____

If death, attach Coroner's Report.



PART 4 DESCRIPTION AND ANALYSIS

Fully describe accident: _____

Attach photographs of accident scene and machinery/equipment.

What factors led to the accident (from Accident Tree in Part 3)? _____

MACHINERY/EQUIPMENT INVOLVED

Manufacturer _____ Equipment Age _____
Serial No. _____ Model _____
Function _____
Location _____

- 1. Has machine/equipment been modified?
- 2. Was it guarded properly?
- 3. Was there any mechanical failure?

To answer these questions, research and attach equipment history, maintenance history, relevant photographs and other reports and comments.

CONSTRUCTION

If construction-related, date of contract _____
Is firm General Contractor or Subcontractor
Names of other contractors _____

WEATHER/ENVIRONMENTAL CONDITIONS (temperature, housekeeping, lighting, work surfaces, etc.)

TRAINING

Did employee receive specific training or instructions relating to safety and health on the job being performed?

Yes No

If Yes: Type: _____

Instructed by: _____

When instructed: _____ Length of training _____

Attach appropriate training documentation.

PART 5 SPECIFIC ACTION THAT WILL BE TAKEN

ITEM #	DESCRIPTION	ROUTE TO	TARGET DATE

WHAT ADDITIONAL ACTIONS SHOULD BE CONSIDERED?

Completed by: _____ Date of Investigation _____

Title: _____

Reviewed by: _____ Date _____

Reviewed by: _____ Date _____

Attach individual statements from :

- (a) the injured worker**
- (b) any witness(es) or others with contributing information**
- (c) the employer.**

For each statement, include name, job title, home address, home telephone number, and the date the statement was given.

MORE EFFECTIVE ACCIDENT CONTROL



THROUGH GOOD



INVESTIGATION

and

REMEDIAL ACTION

BY APPLYING THESE OBJECTIVES

- | | | |
|---|--|---|
| <ol style="list-style-type: none">1. To determine all contributing casual factors.2. To determine the fundamental or basic reason for the existence of each contributing factor. | | <ol style="list-style-type: none">1. To eliminate or control each contributing cause.2. To eliminate or control the reason for the existence of each contributing cause. |
|---|--|---|

AND FOLLOWING THESE GUIDEPOSTS

- | | | |
|---|--|---|
| <ul style="list-style-type: none">• In case of injury, make sure worker is properly cared for before doing anything else• When practical, have scene kept as undisturbed as possible• Investigate as promptly as possible• Whenever possible, go to scene of accident for initial investigation• As applicable, have someone else get photographs; make drawings or measurements• Interview all witnesses, one at a time and separately• Reassure each witness of investigations real purpose• Get witnesses initial version with minimal interruption; ask for complete version step by step; have them describe and point without doing• Apply empathy in interviews; make no attempt to fix blame or find fault• Be objective; don't have fixed opinion in advance• When witness finishes initial explanation, ask questions to fill in gaps• Avoid questions that lead witness or imply answers wanted or unwanted• Summarize your understanding with witness after interview• Express sincere appreciation to anyone who helped in the investigation• Record data accurately | | <p>(Select appropriate actions)</p> <ul style="list-style-type: none">• Institute formal training program• Give personal reinstruction• Institute Proper Job Instruction Program• Temporarily or permanently reassign person(s)• Institute a job analysis program• Order job analysis on specific job(s)• Revise existing job analysis• Institute a job observation program• Order job observation on specific job(s)• Install or improve safeguards• Institute new or improve existing inspection program• Institute pre-use checkout of equipment• Institute mandatory protective equipment program or improve existing coverage or design• Improve physical examination program• Establish or revise indoctrination for new or transferred employees• Eliminate unnecessary material in area• Repair or replace equipment• Improve design of equipment• Establish design requirements for new equipment• Improve basic design or establish design standards• Improve identification or color code for safety• Institute program of order or improve clean-up• Use safer material• Establish purchasing standard(s) or controls• Institute incident recall program• Create incentive program |
|---|--|---|

WILL REDUCE

**INJURIES & DAMAGE
REJECTS & REWORK**

**DEFECTS & DELAYS
REJECTS & REWORK**

FIRST-AID REPORT FORM

Date _____ Case number _____

Name _____ Male Female

Department _____ Job Title _____

Supervisor _____

Date of Treatment _____ Time _____ AM / PM

Type of Injury _____

Describe What Happened _____

Nature of Treatment _____

Subsequent Action Taken:

- Referred to Physician Sent to hospital Sent home
- Returned to work Refused treatment
- Other (explain) _____

Signed _____ Date _____

Title _____

SCHOOL ACCIDENT REPORT FORM GENERAL INFORMATION

I. School _____

City Exempted Village Local (County) Parochial

Mailing address _____

ENROLLMENT

Male _____

Female _____

Total _____

A. Name _____
Last First Middle Initial

B. Grade _____ C. Age _____

B. Sex- Male Female

ACCIDENT INFORMATION

II. A. Time of Accident _____ A.M./P.M. Date _____

B. Supervised Activity? Yes No C. If yes, person in charge _____

D. NATURE OF INJURY

(May be completed after medical examination)

<input type="checkbox"/> Abrasion	<input type="checkbox"/> Concussion	<input type="checkbox"/> Fracture	<input type="checkbox"/> Sprain
<input type="checkbox"/> Bruise	<input type="checkbox"/> Cut	<input type="checkbox"/> Laceration	<input type="checkbox"/> Strain
<input type="checkbox"/> Burn	<input type="checkbox"/> Dislocation	<input type="checkbox"/> Puncture	<input type="checkbox"/> Other _____

E. PART OF BODY INJURED

F. KIND OF ACCIDENT (check one only)

<p>I. Head</p> <input type="checkbox"/> Scalp <input type="checkbox"/> Back <input type="checkbox"/> Front <input type="checkbox"/> Eyes <input type="checkbox"/> Ear <input type="checkbox"/> Nose <input type="checkbox"/> Mouth <input type="checkbox"/> Tooth <input type="checkbox"/> Neck	<p>II. Trunk</p> <input type="checkbox"/> Chest <input type="checkbox"/> Abdomen <input type="checkbox"/> Back	<p>III. Arms</p> <input type="checkbox"/> Shoulder <input type="checkbox"/> Upper Arm <input type="checkbox"/> Elbow <input type="checkbox"/> Lower Arm <input type="checkbox"/> Hand <input type="checkbox"/> Fingers	<p>IV. Legs</p> <input type="checkbox"/> Hip <input type="checkbox"/> Upper Leg <input type="checkbox"/> Knee <input type="checkbox"/> Lower Leg <input type="checkbox"/> Foot <input type="checkbox"/> Toes	<input type="checkbox"/> Animal or insect bite <input type="checkbox"/> Collision with student (bump, etc.) <input type="checkbox"/> Contact with hot or toxic substance <input type="checkbox"/> Fall or slip <input type="checkbox"/> Fighting <input type="checkbox"/> Struck by auto, bike, etc. <input type="checkbox"/> Struck by object (swing, etc.) <input type="checkbox"/> Student collided with object (door, etc.) <input type="checkbox"/> Other _____ _____
--	---	--	--	---

G. WHERE ACCIDENT HAPPENED (check one only)

- | | | |
|---|-------------------------------------|--|
| <input type="checkbox"/> Athletic Field | <input type="checkbox"/> Hallway | <input type="checkbox"/> Stairway |
| <input type="checkbox"/> Cafeteria | <input type="checkbox"/> Playground | <input type="checkbox"/> To or from school |
| <input type="checkbox"/> Classroom | <input type="checkbox"/> Restroom | <input type="checkbox"/> Vocational Shops and Labs |
| <input type="checkbox"/> Gym | <input type="checkbox"/> School bus | <input type="checkbox"/> Other_____ |
-

CONTROLLING CAUSES

A. ENVIRONMENTAL FACTORS
(check one only)

- Crowding
- Doors
- Drinking fountain
- Equipment
- Floors
- Hard surface
- Lighting
- No handrail
- Weather
- Other_____

B. HUMAN FACTORS
(check one only)

- Active game
- Fatigue
- Fighting
- Horseplay
- Lack of training or experience
- Preoccupation
- Running
- Violation of rules
- Other_____

C. AGENTS
(check one only)

- Animal or insect
- Electricity
- Fire
- Gases
- Liquids
- Recreation equipment
- Pencil
- School equipment
- Solids
- Student
- Vehicle
- Other_____

ACCIDENT INVESTIGATION REPORT		DEPT #	DATE PREPARED	CASE #
NAME OF INJURED (Last, First, Middle Initial)		CLOCK #	DATE OF ACCIDENT	NAMES OF FIRST AID PERSONNEL
DATE ACCIDENT REPORTED	TIME OF ACCIDENT <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.	SHIFT <input type="checkbox"/> A. <input type="checkbox"/> B. <input type="checkbox"/> C. <input type="checkbox"/> D.	OVERTIME <input type="checkbox"/> YES <input type="checkbox"/> NO HOURS WORKED _____	DAY OF OCCURRENCE <input type="checkbox"/> MON <input type="checkbox"/> TUES <input type="checkbox"/> WEDS <input type="checkbox"/> THURS <input type="checkbox"/> FRI <input type="checkbox"/> SAT <input type="checkbox"/> SUN
OCCUPATION AT ACCIDENT	REGULAR OCCUPATION	DEPT # OF ACCIDENT	DATE LOST TIME BEGAN	WITNESS(ES)
EXPERIENCE IN OCCUPATION <input type="checkbox"/> Trainee <input type="checkbox"/> 3 Mo. – 1 Year <input type="checkbox"/> 1 Yr. – 2 Yr. <input type="checkbox"/> Over 2 Yrs.	OSHA RECORDABLE <input type="checkbox"/> First Aid Only <input type="checkbox"/> Medical Only <input type="checkbox"/> Lost Work	OSHA LOG <input type="checkbox"/> Yes <input type="checkbox"/> No	INJURED EMPLOYEE (Signature)	
LOCATION OF ACCIDENT (Be exact)		EQUIPMENT INCLUDED (Be exact – Machine #, etc.)		HAVE ANY NEAR MISSES OCCURRED SIMILAR TO THIS ACCIDENT? <input type="checkbox"/> YES <input type="checkbox"/> NO

NATURE OF INJURY ILLNESS	PART OF BODY	ACCIDENT TYPE	SOURCE	CASUAL FACTORS (check more than one)		
<input type="checkbox"/> Abrasion <input type="checkbox"/> Amputation <input type="checkbox"/> Bruise/Contusion/Dislocation <input type="checkbox"/> Burn <input type="checkbox"/> Crushing injury <input type="checkbox"/> Cumulative injury <input type="checkbox"/> Cut, puncture, laceration <input type="checkbox"/> Dermatitis <input type="checkbox"/> Fracture <input type="checkbox"/> Hearing <input type="checkbox"/> Hernia <input type="checkbox"/> Occupational Illness <input type="checkbox"/> Shock, electrical <input type="checkbox"/> Sprain, strain <input type="checkbox"/> Visual <input type="checkbox"/> Multiple <input type="checkbox"/> Other (specify on back page)	<input type="checkbox"/> Right Eye <input type="checkbox"/> Left Eye <input type="checkbox"/> Right Ear <input type="checkbox"/> Left Ear <input type="checkbox"/> Right Arm <input type="checkbox"/> Left Arm <input type="checkbox"/> Right Hand <input type="checkbox"/> Left Hand <input type="checkbox"/> Right Leg <input type="checkbox"/> Left Leg <input type="checkbox"/> Right Knee <input type="checkbox"/> Left Knee <input type="checkbox"/> Right Ankle <input type="checkbox"/> Left Ankle <input type="checkbox"/> Right Foot <input type="checkbox"/> Left Foot <input type="checkbox"/> Right Arm <input type="checkbox"/> Left Arm <input type="checkbox"/> Left Shoulder <input type="checkbox"/> Right Shoulder	<input type="checkbox"/> Head <input type="checkbox"/> Nose <input type="checkbox"/> Mouth <input type="checkbox"/> Neck <input type="checkbox"/> Chest <input type="checkbox"/> Back <input type="checkbox"/> Finger <input type="checkbox"/> Abdomen <input type="checkbox"/> Ribs <input type="checkbox"/> Groin <input type="checkbox"/> Toe <input type="checkbox"/> Internal <input type="checkbox"/> Multi. Head <input type="checkbox"/> Multi. Upper Body <input type="checkbox"/> Multi. Lower Body <input type="checkbox"/> Other (specify)	<input type="checkbox"/> Ingestion of toxins <input type="checkbox"/> Bodily reaction <input type="checkbox"/> Caught under/between <input type="checkbox"/> Contact w/electrical <input type="checkbox"/> Fall from elevation <input type="checkbox"/> Fall on same level <input type="checkbox"/> Motor vehicle <input type="checkbox"/> Overexertion <input type="checkbox"/> Rubbed/abrasion <input type="checkbox"/> Struck against <input type="checkbox"/> Struck by <input type="checkbox"/> Foreign body <input type="checkbox"/> Head <input type="checkbox"/> Contact w/ temperature extreme <input type="checkbox"/> Aggravation reoccurrence <input type="checkbox"/> Other (specify on back page)	<input type="checkbox"/> Belts/Gears <input type="checkbox"/> Chemical <input type="checkbox"/> Dust, fumes, gases <input type="checkbox"/> Electricity <input type="checkbox"/> Falling object <input type="checkbox"/> Material handling <input type="checkbox"/> Hand tool <input type="checkbox"/> Machinery <input type="checkbox"/> Pushing or Pulling <input type="checkbox"/> Sharp objects <input type="checkbox"/> Vehicles <input type="checkbox"/> Other personnel <input type="checkbox"/> Weather conditions <input type="checkbox"/> Water <input type="checkbox"/> Ladder/Scaffold/ Stairs <input type="checkbox"/> Other (specify on back page)	<input type="checkbox"/> Failure to use PPE <input type="checkbox"/> Defective equipment <input type="checkbox"/> Lack of safety design <input type="checkbox"/> No warning system <input type="checkbox"/> Improper ventilation <input type="checkbox"/> Poor housekeeping <input type="checkbox"/> Lack of proper training <input type="checkbox"/> Hazardous procedure <input type="checkbox"/> Placement/Arrangement <input type="checkbox"/> Unexpected movement <input type="checkbox"/> Inadequately guarded <input type="checkbox"/> Operation w/o authority <input type="checkbox"/> Taking unsafe position <input type="checkbox"/> Making safety devices inoperative <input type="checkbox"/> Violation of established procedures <input type="checkbox"/> Other (specify on back page)	<input type="checkbox"/> Defective tools <input type="checkbox"/> Unsafe speed <input type="checkbox"/> Personal attire <input type="checkbox"/> Apparel violation <input type="checkbox"/> Horseplay <input type="checkbox"/> Inattentive <input type="checkbox"/> Fire, explosion <input type="checkbox"/> Taking shortcuts
				PHYSICAL/MENTAL CONDITIONS <input type="checkbox"/> Under the influence <input type="checkbox"/> Emotionally upset <input type="checkbox"/> Personal problems		
				<input type="checkbox"/> Weak/ Fatigued <input type="checkbox"/> Sick <input type="checkbox"/> Sluggish		

INCIDENT ANALYSIS FORM

- Incident analysis helps you in reducing or preventing future occupational injuries and illnesses.
- This form requests all the information that the DWC says you must record for each on-the-job injury, fatality, and occupational disease. Employers must keep injury records for five years
- This form requests all the information that the DWC says you must record for each on-the-job injury, fatality, and occupational disease. Employers keep injury records for five years after the last day of the year in which the injury occurred.

This is an Injury Disease Fatality Near Miss

TODAY'S DATE _____

DATE REPORTED _____

COMPANY _____

DEPARTMENT _____

SUPERVISOR _____

PHONE NO. _____

1. Name of Person _____

2. Sex _____ 3. Social Security Number ___/___/___

4. Date of Birth ___/___/___ 5. Date of Incident ___/___/___

6. Home Address _____

Telephone () _____

7. Time and Day of Incident

_____ a.m. _____ p.m.

Day of week _____

8. Specific Location of Incident - Was it on employer's premises yes no

9. Employee's Occupation

10. Job task at Time of Incident

11. Length of Service

_____ Years _____ Months

12. Employee was Working:

Alone With Fellow Workers Other

13. Name and Address of Treating Physician

Telephone () _____

14. Employment Category

- Regular, full-time
- Regular, part-time
- Seasonal
- Temporary
- Non-employee

15. Experience in Occupation at Time of Incident

- Less than 1 month
- 1 to 6 months
- 6 months to 1 year
- 1 to less than 5 years
- 5 or more years

16. Name and Address of Hospital

17. Phase of employee's Workday at Time of Injury

- During break period
- During meal period
- Working overtime
- Entering or leaving the building
- Other (explain below)

18. Name of employee's immediate supervisor at time of incident?

Witnessed? yes no

19. Employee's Wage (pay per hour)

20 Other Witnesses

21. Voluntary benefits paid by the employer, if any

22. PART of BODY INFURIED or AFFECTED

- | | | | | | |
|---------------------------------------|--------------------------------|--|------------------------------------|---------------------------------|------------------------------------|
| <input type="checkbox"/> Skull, Scalp | <input type="checkbox"/> Jaw | <input type="checkbox"/> Abdomen | <input type="checkbox"/> Shoulder | <input type="checkbox"/> Wrist | <input type="checkbox"/> Knee |
| <input type="checkbox"/> Eye | <input type="checkbox"/> Neck | <input type="checkbox"/> Back | <input type="checkbox"/> Upper Arm | <input type="checkbox"/> Hand | <input type="checkbox"/> Thigh |
| <input type="checkbox"/> Nose | <input type="checkbox"/> Spine | <input type="checkbox"/> Pelvis | <input type="checkbox"/> Elbow | <input type="checkbox"/> Finger | <input type="checkbox"/> Lower Leg |
| <input type="checkbox"/> Mouth | <input type="checkbox"/> Chest | <input type="checkbox"/> Other Body Part | <input type="checkbox"/> Forearm | <input type="checkbox"/> Hip | <input type="checkbox"/> Foot |
| | | | | <input type="checkbox"/> Ankle | <input type="checkbox"/> Toe |

23. NATURE of INJURY or ILLNESS

- | | | | | |
|---|--|--|---|--|
| <input type="checkbox"/> Puncture | <input type="checkbox"/> Bruise, Contusion | <input type="checkbox"/> Skin Disorder | <input type="checkbox"/> Amputation | <input type="checkbox"/> Muscle Sprain |
| <input type="checkbox"/> Laceration | <input type="checkbox"/> Dislocation | <input type="checkbox"/> Burn | <input type="checkbox"/> Insect/Animal Bite | <input type="checkbox"/> Muscle Strain |
| <input type="checkbox"/> Fracture | <input type="checkbox"/> Abrasion | <input type="checkbox"/> Respiratory | <input type="checkbox"/> Foreign Body | <input type="checkbox"/> Hernia |
| <input type="checkbox"/> Heat/Cold Stress | <input type="checkbox"/> Hearing Loss | <input type="checkbox"/> Chemical Exp | <input type="checkbox"/> Cumulative Trauma Disorder | |
| <input type="checkbox"/> Irritation | <input type="checkbox"/> Infection | <input type="checkbox"/> Other | | |

24. Disposition

Days away from work # _____
 Restricted work days # _____
 Date returned to work ___/___/___
 Sent to: Doctor ___ Hospital ___

25. DIAGNOSIS

26. SEVERITY

- First Aid
- Lost Work Days
- Medical Treatment
- Fatality
- Other

27. WHAT CONDITION of TOOLS, EQUIPMENT, or WORK AREA CONTRIBUTED TO INCIDENT?

- | | | |
|---|---|---|
| <input type="checkbox"/> Close Clearance/Congestion | <input type="checkbox"/> Floors/Work Surfaces | <input type="checkbox"/> Inadequate Housekeeping |
| <input type="checkbox"/> Hazardous Placement | <input type="checkbox"/> Inadequate Ventilation | <input type="checkbox"/> Equipment Failure |
| <input type="checkbox"/> Inadequate Warning System | <input type="checkbox"/> Equipment/Workstation Design | <input type="checkbox"/> Inadequate Guards/Barrier |
| <input type="checkbox"/> Defective Tools | <input type="checkbox"/> Illumination | <input type="checkbox"/> Inadequate/Improper P.P.E. |

28. WHAT CAUSED or INFLUENCED SUBSTANDARD CONDITIONS?

- Abuse or Misuse
- Inadequate Supervision
- Inadequate Purchasing
- Inadequate Maintenance
- Inadequate Tools/Equip. Mat.
- Improper Work Surfaces
- Lack of Knowledge/Training
- Improper Motivation
- Inadequate Capacity
- Inadequate Engineering
- Wear and Tear
- Lack of Skill

29. WHAT ACTION or INACTION CONTRIBUTED to the INCIDENT?

- Failure to Make Secure
- Under Influence Drugs/Alcohol
- Failure to Warn/Signal
- Nullified Safety/Control Devices
- Used Defective Equipment
- Horseplay/Distractive Active
- Used Equipment Improperly
- Improper Lifting
- Operating Procedure Deviation
- Running/Rushing/Acting in Haste
- Improper Loading
- Unauthorized Actions
- Improper Technique
- Improper Position
- Servicing/Operating Equipment
- Inadequate/Improper P.P.E Use
- Operating at Improper Speed
- Used Wrong Tool/Equipment
- Other

30. PROBABLE RECURRENCE

- Frequent
- Occasional
- Rare

31. LOSS SEVERITY POTENTIAL

- Major
- Serious
- Minor

32. PREVENTIVE MEASURES:

(What corrective actions have been taken or are planned to prevent a recurrence?)

- Improve Enforcement
- Improve Clean-up Procedures
- Repair/Replace Equipment
- Improve Storage/Arrangement
- Rotation of Employees
- Eliminate Congestion
- Identify/Improve P.P.E.
- Install/Revise Guards/Devices
- Task Analysis to Be Completed
- Task Analysis/Procedure Revision
- Improve Design/Construction
- Job Reassignment of Employees
- Use Other Materials/Supplies
- Improve Illumination
- Mandatory Pre-Job Instructions
- Improve Ventilation
- Reinstruction of Employees
- Corrective Counseling
- Improve/Change Work Method
- Other

33. EMPLOYEE'S DESCRIPTION OF INCIDENT (Attach sheet for additional comments)

34. SUPERVISOR'S DESCRIPTION of INCIDENT (Attach sheet for additional comments)

35. SPECIFIC CORRECTIVE ACTIONS or PREVENTIVE MEASURES TAKEN

Corrective Action Taken	Person Responsible	Target Date	Date Completed
_____	_____	___/___/___	___/___/___
_____	_____	___/___/___	___/___/___
_____	_____	___/___/___	___/___/___
_____	_____	___/___/___	___/___/___

Supervisor's Signature

___/___/___
Date

ACCIDENT INVESTIGATION CHECKLIST

WHO?

- Who was involved? Who is he/she? What was he doing at the time? Was it his job? Since when? Was he trained for it?

WHAT?

- What equipment was involved? What was it doing/being used for at the time? Was this a normal use?
- What was its condition (use/abuse, maintenance, etc.)? Was this a usual condition? Was it properly guarded?
- What materials were involved? What were they being used for? Was this a proper use for them?
- What known hazards do they have (toxicity, radiation, sharp, etc.)? If hazards exist, were the materials being used/handled properly?

WHERE?

- Where did it happen in the plant/shop?
- What was the environment like? What was the layout?
- What was the condition of the workplace/site at the time? (Floor – housekeeping – traffic – lighting – noise – distractions – temperature, etc.)
- Where did it occur in the flow of operation? Where in the Production Line? Where were the people (identified in “WHO” above) positioned relative to be the occurrence?

WHEN?

- When was it reported? When did it occur in the working day? On what day/date?

HOW?

- How did it happen/ How can you be sure? Can you use the answers to these questions to produce a detailed description.
- Are the answers clear enough?
- Do you need to repeat or rephrase any questions?
- Do you need to ask more questions?

WHY?

- Evolves from all these questions.

This information is provided by:
FARM SAFETY ASSOCIATION INC.,

The information and recommendations contained in this publication are believed to be reliable and representative of contemporary expert opinion on the subject material. The Farm Safety Association does not guarantee absolute accuracy or sufficiency of subject material, nor can it accept responsibility for health and safety recommendations that may have been omitted due to particular and exceptional conditions and circumstances.

Completing an Incident Report/Analysis

An accident analysis should be conducted for all accidents or incidents, regardless of the injury severity. This should also be done for “near misses,” a case when an accident was narrowly avoided. An effective accident analysis process requires preparation and procedure development. Specific personnel, whether they be immediate supervisors, safety committee members, investigation team or safety coordinator should be trained in accident analysis principles and processes.

First Step- Care for the Injured

Insure appropriate medical care or first aid is provided for anyone injured.

Second Step- Secure the Scene of the Accident

Make certain that key evidence is preserved so that all pertinent facts of the accident can be determined. In the case of serious accidents, photographs of the scene are a valuable tool in determining causes, particularly if the area needs to be put back in order quickly. Note the position of equipment and materials, presence or lack of equipment safeguarding, specific materials and chemicals involved, warning signs and other physical evidence.

Third Step- Interview Witnesses

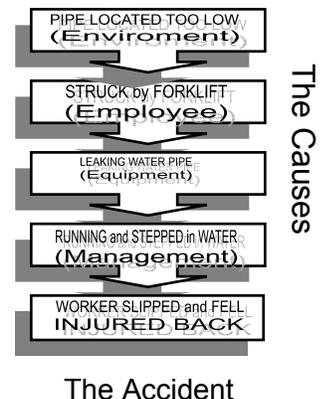
Witnesses to the accident or persons having knowledge valuable to the analysis should be met with individually. Emphasis should be placed on determining the facts, not on placing blame. If the injured employee(s) is/are not seriously injured, they should be interviewed while awaiting transport for medical treatment. All questions should be open-ended (who, what, when, where, how and why), to encourage a detailed account of the facts. Yes and No questions should be avoided.

Fourth Step- Analyze Data to Determine Causes and Best Practices to Prevent Recurrence

Refer to your notes from the scene of the accident and witness interviews. Work backwards from the accident to trace all causes to their source. It is helpful to have multiple people involved in determining possible solutions. Each cause identified presents an opportunity for intervention to reduce the potential for future accidents:

Fifth Step- Complete the Report

Once all the causes and best practices have been identified a thorough and accurate report needs to be completed. Fill out all parts. When completing Part 5 (Describe Accident Fully), make sure to identify the activities taking place just before the accident, what went wrong and what the results was. Identify the System Challenges that contributed to the accident (MEEE) and the Countermeasures or Best Practices needed to prevent recurrence.



Sixth Step- Follow-up on Corrective Actions

This is usually the function of the safety coordinator or safety committee. At the next safety committee meeting, any accident analysis reports should be reviewed to ensure appropriate corrective actions (Countermeasures/Best Practices) were identified. Furthermore, steps should be taken to ensure that these actions have been implemented at the site of the accident as well as in any other areas appropriate in the organization. Any accidents or incidents occurring, for which a report was not completed, should be referred to the appropriate person responsible for completion of the report.

Company Name _____

BWC Claim # _____

**COMPLETE WITHIN
12 HOURS OF
ACCIDENT OR
ONSET OF
SYMPTOMS**

Accident Investigation Employee Incident Report Form

Sections 1 through 4 to be completed by injured employee
Section 5 to be completed by employee supervisor

Section 1 – Type of Occurrence

- Injury or Illness Near Miss Facility Damage

Section 2 - Employee information

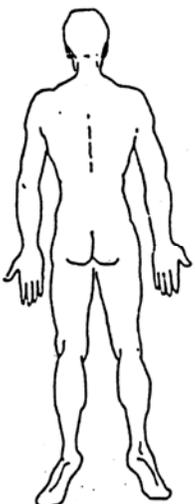
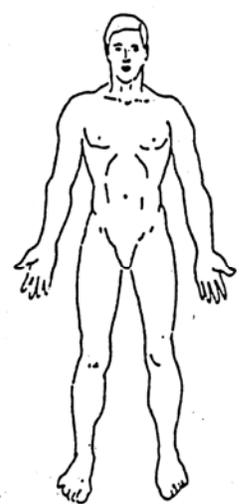
Employee name		Home phone number ()	
Job Title	Department		Shift
Social security number	Date of birth	Sex <input type="checkbox"/> Male <input type="checkbox"/> Female	Date of hire

Section 3 - Medical Treatment

Medical Facility / Physician	Phone number ()	
Address	Treated in Emergency Room? <input type="checkbox"/> Yes <input type="checkbox"/> No	Fatality? <input type="checkbox"/> Yes <input type="checkbox"/> No

Section 4 - Occurrence information

Circle on the diagram location of injury

Employee Signature

Type of Injury (circle)

1. Strain/Sprain
2. Pain/Soreness
3. Laceration
4. Bruise
5. Pulled Muscle
6. Scratch/Abrasion
7. Burn
8. Swelling
9. Bite
10. Irritation
11. None apparent
12. Fracture
13. Other _____

Company Name

BWC Claim # _____

Describe how the accident occurred (what happened before, during and after the accident)	Date and Time of Accident <input type="checkbox"/> AM <input type="checkbox"/> PM
	Time Shift Began <input type="checkbox"/> AM <input type="checkbox"/> PM
	Date and Time Reported <input type="checkbox"/> AM <input type="checkbox"/> PM
	Have you ever injured this part of your body before <input type="checkbox"/> Yes <input type="checkbox"/> No

Were you performing a regular job task when the accident occurred <input type="checkbox"/> Yes <input type="checkbox"/> No	Have you been trained to perform the this job <input type="checkbox"/> Yes <input type="checkbox"/> No	
Location of accident	Equipment involved	
Who else was involved in the accident		
Who saw or helped you when the accident occurred		
How could this accident be prevented in the future		
Employee Signature		Date

Company Name _____

BWC Claim # _____

Section 5 – Supervisor Analysis

<input type="checkbox"/> Employee portion of form completed	<input type="checkbox"/> Employee indicated body part injured and signed at bottom of picture
<input type="checkbox"/> Witness statements attached	<input type="checkbox"/> Interviewed witnesses and / or reviewed statements
<input type="checkbox"/> If equipment was involved, reviewed equipment maintenance records	<input type="checkbox"/> Maintenance has been notified of equipment problems (i.e. missing guards, faulty operation, etc)
<input type="checkbox"/> When was employee last trained related to procedure or equipment related to this accident	<input type="checkbox"/> Work restrictions received
<input type="checkbox"/> Photographs attached	<input type="checkbox"/>
ACCIDENT CAUSAL FACTORS	CORRECTIVE ACTIONS
<input type="checkbox"/>	<input type="checkbox"/>
ROUTING (SIGNATURES)	
1) Employee Supervisor	Date
2) Human Resources / Safety Manager	Date
3) Plant Manager / CEO	Date
Revised August 29, 2007	

RESOURCES

Saving You Time and Research

Requests for copies of OSHA standards, information on starting a safety committee, a video on accident investigation techniques -- these are some of the thousands of inquiries BWC's Division of Safety & Hygiene (DSH) libraries receive each year.

DSH has two libraries to serve you:

- The central library in the William Green Building in downtown Columbus;
- The resource center and video library located at the Ohio Center for Occupational Safety and Health (OCOSH) in Pickerington.

Both libraries are open 8 a.m. to 5:00 p.m., Monday through Friday. Your need for information does not require a visit to the library. You can phone, fax, or e-mail your requests and receive a quick response.

The central library provides free information services on the topics of occupational safety and health, workers' compensation and rehabilitation.

The OCOSH resource center provides similar services for those who visit OCOSH for meetings and training center classes.

The video library offers an extensive collection of videotapes to supplement your organization's safety and health training program. It is a convenient and popular source for Ohio employers to borrow quality occupational safety- and health-related training aids.

Visit our Web site at **www.ohiobwc.com**.

Central library
30 W. Spring St., Third Floor
Columbus OH 43215-2256
1-800-OHIOBWC
(614) 466-7388
(614) 644-9634 (fax)
library@bwc.state.oh.us

OCOSH resource center
13430 Yarmouth Drive
Pickerington OH 43147
1-800-OHIOBWC
Resource center (614) 728-6464
Video library (614) 644-0018

Resources Available from the Division of Safety & Hygiene (DSH) Libraries

(800) 644-6292 (614) 466-7388

library@bwc.state.oh.us

www.ohiobwc.com

Safety training:

- Safety talks, outlines and scripts - DSH Safety leader's discussion guide, Training Center's One-hour safety presentations, reference books, web resources
- Videos – hundreds of safety and health topics
- Books and articles on training techniques

Machine and equipment safety:

- Safety standards (ANSI, NFPA, CGA)
- Books and articles on power presses, material handling equipment, lockout/tagout, etc.

Sample written programs:

- DSH program profiles and sample written programs
- Reference books
- Internet resources

Illness and injury statistics:

- Statistics from the U.S. Bureau of Labor Statistics
- National Safety Council's *Injury Facts*
- National Institute of Occupational Safety & Health (NIOSH) studies

Hazard communication and chemical safety:

- Chemical safety information
- Material safety data sheets (MSDSs)
- Sample written programs
- Videos
- Internet resources

Safety standards

- American National Standards Institute (ANSI) standards (including standards for construction, machinery and equipment, personal protective equipment)
- National Fire Protection Association (NFPA) fire codes (including the Life Safety Code and the National Electrical Code)
- Compressed Gas Association (CGA) standards

Other topics of interest (books, articles, magazines, videos and standards):

- Confined spaces
- Electrical safety
- Job safety analysis
- New employee orientation
- Powered industrial trucks
- Respiratory protection
- Scaffolds
- Spill response

Directories and lists of vendors of safety equipment

Occupational Safety & Health Administration (OSHA) regulations

Manual of Uniform Traffic Control Devices (MUTCD)

Recommendations of useful Internet sites

BWC publications

“Accident Investigations: How to Ask Why,” from *Safety & Health*, December 1992, appears here in its entirety. The original page numbers appear on the pages.

This article is reprinted with permission from *Safety & Health*, published by the National Safety Council, 1121 Spring Lake Drive, Itasca IL 60143

Accident Investigations: How to Ask Why

With a little psychology and a lot of common sense, you can get more out of interviews with accident witnesses.

By Shane Tritsch

You wouldn't send an archaeologist to unearth the remains of an ancient city if he or she didn't know how to use a shovel. Yet when accidents happen in the workplace, companies often do the equivalent when they send investigators who don't know how to use their most important tool, the witness interview, to dig for information.

Witness interviews can make or break an accident investigation. They yield information an investigator needs to reconstruct the accident, understand its causes and ultimately recommend ways to prevent it from reoccurring. Yet some investigators step into their roles with little formal training. They may ask the wrong questions and fail to get the most out of witnesses. Or they might antagonize witnesses and lose their trust. Maybe they presume too quickly to know all the answers and fail to pursue important lines of questioning. Or perhaps they steer witnesses to their own hypotheses.

With so much riding on an investigation - the safety and well-being of the workers, for one thing, and a company's ability to defend itself in potential litigation, for another - it is crucial that safety professionals master the art of the post-accident witness interview.

The Basics of Accident Prevention

Even at companies where safety is a priority, accidents are inevitable. Prepare yourself with an investigation game plan. "Sit down as a management group or safety group and

look at areas where people get hurt," says Harold Risk, professor of health and safety at St. Cloud State University in Minnesota. "Conveyor belts, computers, fire and heat, sharp objects, heavy materials, high-speed equipment, enclosed places where someone could be trapped or overcome by toxic vapors or gases - all present hazards. If you don't know the right questions to ask [about hazardous areas], you're just going to wing it and may fail to get crucial information."

as a group is not advisable because they will tend to rally around a consensus. "If someone says something [that's not true], the rest may agree to it because no one wants to rat on anyone else," explains Phil Schmidt, section administrator for the National Safety Council.

- Conduct the interview at the scene of the accident. Witnesses can point to specific details and conditions rather than describe them, and the interviewer can see them rather than imagine them. This saves time

As an investigator, you're not auditioning for a cross-examination scene on the next episode of L.A.

Witness interviews vary according to the investigation and the investigator. Most safety experts agree, however, on some basic principles.

- Get the names of anyone who can provide relevant information. The list should include those directly involved with the accident, those who saw it happen, those who can account for events leading up to it and those who arrived on the scene immediately afterward. The best witnesses generally were close to the scene, often within a radius of 10 feet, Risk says.

- Interview one-on-one. Gang interviewing with a team or panel of investigators intimidates a witness. Conversely, interviewing witnesses

and prevents misunderstanding.

- Question witnesses as soon as possible. Facts are fresher, memories are clearer. The only reason to delay an interview is for medical treatment or because the person needs time to regain composure.

"If you wait until the next day to get to a witness, the validity is pretty much gone," Risk says. "Their recollection won't be as detailed. Plus, they'll go home and get coaching from other people and end up changing their stories."

Find Fact, Not Fault

The best witness is one who is relaxed and who responds freely to questions. Yet often witnesses are

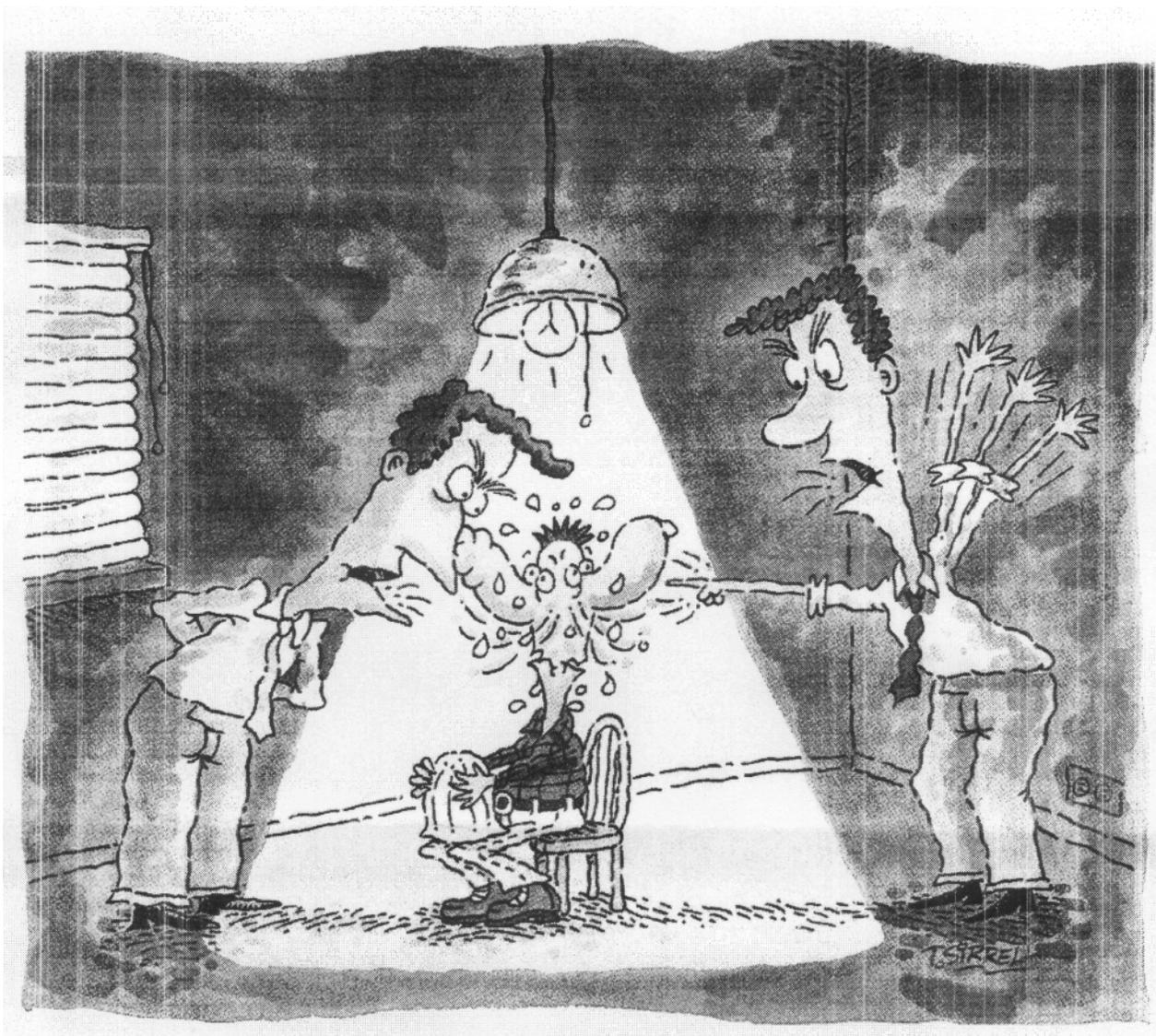


Illustration by Terry Sirrell

anything but relaxed or responsive, especially at the beginning of an interview. They may be concerned about the well-being of a friend or colleague. They may also fear that their testimony will get someone in trouble or jeopardize their job. Like Schultz on the old *Hogan's Heroes*

television show, they might conclude that the safest course is simply to say, "I know nothing."

"It's human nature to hold back," Risk says. "To talk is to expose yourself. To keep quiet is to protect yourself. There is usually a mentality of us against them - workers against

management. And both sides are going to look out for their own best interests."

There are numerous ways to encourage witness cooperation (see sidebar), but perhaps the key is to avoid any appearance that you are out to assign blame. "Don't point

fingers,” advises Richard Jarrell, manager of safety and training at Bohn Aluminum Corp. in Butler, Ind. “It won’t get you anywhere other than to make people uncooperative. It tells them you’re interested in one thing – finding fault. You may very well know that there’s fault involved. But workers are very protective of one another. They may not like some co-workers. But they like you, a representative of management, even less.”

Emphasize that the investigation’s purpose is to uncover facts. Review the facts as you know them. It may convince the witness that there is no point in holding back and should lend credibility to your assurance that you really are interested in just the facts.

“I try to ask generic questions starting off, more about conditions than what happened,” says Steven Gross, safety manager at Helena Chemical Co. in Des Moines, Iowa. “If you start by asking about the conditions, that helps put people at ease. It reinforces the fact that it isn’t a head hunt and that we are looking for the root causes of the accident.”

Some safety supervisors tell witnesses right off that they are not looking to find fault or dole out reprisals. While this indeed may be true, the mere mention of the word “fault” might act as a red flag. “The minute you start putting in qualifiers, it’s going to put the person being interviewed on guard,” Risk says. “It’s like telling someone in a police interview that you’re not going to arrest them. Why raise the issue? Why not start out saying that all you want are the facts? Let the witness talk. He or she might talk for five minutes, or go on for an hour.”

To steer witnesses away from concerns about blame and reprisals, stress the more important reason for conducting the investigation, one that is in the workers’ own interest: preventing future accidents. “Reinforce the fact that you’re not out to get someone and that your company is dedicated to safety in the workplace,” says Helena Chemical’s Gross. “An accident is a terrible way to learn from your mistakes, but if you don’t learn, it’s

again. We stress that it’s a learning process and that we don’t want it to happen to the next guy.”

How to Question the Witness

As an accident investigator, you’re not auditioning for a cross-examination scene on the next episode of *L.A. Law*. You want to hear the witness’ views of what happened, just as he or she saw it, unbiased by your line of questioning or someone else’s testimony. Be sure it is the witness’ version and not hearsay or a version that is embellished for your benefit. Practice these techniques during questioning:

- Ask open-ended questions (ones that can’t be answered yes or no). Get the facts about conditions, what happened and how it hap-

pened. Establish whether anything appeared out of the ordinary - an odd odor, perhaps, or a missing machine guard or a procedural breach. But be careful not to lead the witness. If you suspect that an employee involved in an accident got careless because he or she was preoccupied with other matters, don’t ask, “Did John seem distracted lately?” Ask instead, “How has John seemed to you lately?”

In the course of an investigation, it may be tempting to speculate on an accident's cause before hearing all the testimony. Experienced investigators resist this impulse.

pened. Establish whether anything appeared out of the ordinary - an odd odor, perhaps, or a missing machine guard or a procedural breach. But be careful not to lead the witness. If you suspect that an employee involved in an accident got careless because he or she was preoccupied with other matters, don’t ask, “Did John seem distracted lately?” Ask instead, “How has John seemed to you lately?”

- Don’t interrupt. Let the witness tell all he or she knows, from beginning to end. “If you ask questions, you’ll get an answer but maybe not the whole answer. By letting them give their own thoughts, you’re more likely to get opinion as well as fact,” says Don Durnil, occupational safety-and-health officer at the Naval Aviation Depot in Cherry Point, N.C.

- Don’t disagree. “If you’re familiar with the operation and a person says it was done a certain way, and you say it couldn’t have been, you may be right,” Jarrell says. “But the worker was there and saw what happened firsthand. I try to look at *everyone as* telling the truth

until I’m convinced otherwise.”

- Some investigators recommend reenacting the events preceding an accident. The rationale is that reenactment can help the investigator visualize the incident. The obvious drawback is that it could lead to further injury. With proper caution, however, this can be a valuable investigative tool.

- Have the witness draw rough diagrams as a way to detail who was where and to illustrate how the accident happened.

- Ask the witness how the accident could have been prevented. Often the people closest to the scene will have the best understanding of what went wrong and know how to prevent a repeat. When investigators ask for employee input, they

create an atmosphere of partnership and reinforce the notion that the mission is safety and prevention.

- When the witness finishes, follow up with questions that will clarify or amplify previous points. But also recognize that it isn’t necessary always to press for a definite answer. “Let them know it’s okay to say, ‘I don’t know,’” Durnil says. “You want facts. If they don’t know, then you don’t want them to tell you.”

- Keep a permanent, accurate record of the interview. In most cases, detailed notes will suffice. This could be a written summary in the investigator’s words or in the employee’s words. For an elaborate investigation it could even include taped or videotaped testimony. These records will help you keep straight who said what. They will be invaluable when it comes time to write your report or should the investigation reopen in the future.

- Repeat to the witness what you’ve noted, and correct any errors. This assures that you have accurately recorded what the witness

said and not what you think he or she said. It may also jog the witness' memory and unearth details that may shed light on the investigation.

Don't Jump to Conclusions

In the course of an investigation you may be tempted to speculate on an accident's cause before you hear all the testimony. This is natural, but experienced investigators resist the impulse. Those who harbor preconceived notions are more likely to look only for evidence that fits their theory and to ignore that which does not.

"Don't try to project what may have happened, even if you are 99 percent sure," Schmidt says. "The witness will give much better answers if you don't have any foregone conclusions. If you offer witnesses a conclusion, they will either agree with you or change the thrust of their answers."

It's also easy to look for superficial answers rather than root causes. If an employee slips on a wet floor, a sloppy investigator might simply conclude that the wet floor caused the accident and not look into the housekeeping procedures that might have caused a wet floor at an inappropriate time. Recognize that most accidents have more than one cause. Continue to ask questions until those causes become clear, even if it means you must talk to a witness two or three times. Inform witnesses in advance that you may need to conduct follow-up interviews, and don't hesitate to do so if there are discrepancies or gaps in their testimony.

Some discrepancies, however, are probably inevitable and may even be a sign of a good investigation. "If you talk to 12 witnesses, you want to hear 12 different stories," Risk says. "If they saw and heard the same thing, that common thread will run through all of their stories. If two or three people said they heard a snap or rumble, then you get a fairly accurate picture that this is actually what occurred."

Finding out what occurred, of course, is what witness interviews are all about. It is through such revelation, arrived at methodically and objectively, that the accident investigator can help

Sources: Robert Bendy, senior environmental health-and-safety specialist, Loral Fairchild Systems; Oliver Diedrich, environmental health-and-safety coordinator, IGC Advanced Superconductors; Don Durnil, occupational health-and-safety officer, U.S. Marine Corps; Steven Gross, safety

manager, Helena Chemical Co.; Richard Jarrell, manager of safety and training, Bohn Aluminum Corp.; Charles Pabke, safety supervisor, L. E. Pabke Co.; Dr. Harold Risk, professor of health and safety, St. Cloud State University; Phil Schmidt, section administrator, National Safety Council.

The Rapport Report: How to Put Witnesses at Ease

It may not be enough simply to tell a witness that you are not looking to find fault in an accident investigation. You must also show it. After all, verbal assurances will mean little if the witness reads conflicting signals in your demeanor and body language. Harold Risk, professor of health and safety at St. Cloud (Minn.) State University, offers the following tips to help you tailor your actions to your words.

- Introduce yourself, tell witnesses what your position is and why you're there: namely, to find out their impressions and hear their eyewitness account.
- Encourage witnesses to call you by your first name if they don't already know you by that. "If you insist on going by a title such as Dr. or Mr., the employee will perceive you to be a person of authority and will clam up," Risk says.
- Attend to witnesses' creature comforts. Make sure they have a comfortable chair to sit in. Offer them a soft drink or cup of coffee. "The whole thing is to put them at ease, to make them feel nonthreatened," Risk explains. "What you don't want to do is create the feeling of an interrogation room from an old police movie. A bare room with a single metal table and a bare light bulb is the last thing in the world you want."
- Sit adjacent or near to witnesses. Avoid placing barriers between the two of you such as a long conference table or a large desk.
- Speak gently, colloquially, with a relaxed cadence - in the manner of a counselor. Avoid speaking too formally, quickly or loudly.
- Be sincere, polite and show compassion.
- Be conscious of your own body language and the fact that it can betray your real thoughts. "Just by a simple gesture - like raising an eyebrow or cocking your head - you can show that you don't believe witnesses, even without saying a word, and even though they were there and ostensibly are telling you what they saw," Risk says.
- Pay careful attention while witnesses speak. Maintain eye contact, and refrain from nervous habits such as tapping your foot or playing with your coffee cup.
- Avoid threatening gestures such as standing over witnesses or walking behind them, where they can't see you.
- Foster a sense of partnership and boost witnesses' esteem by stressing to them that they are a key in the company's efforts to create a safer environment. First of all, it's true. And second, says Risk, "Everyone likes to be schmoozed a little."
- Don't rush because your boss wants a report pronto or because it's Friday afternoon and you want to go home. "It's a mistake to show you're in a hurry," Risk says. "As soon as they perceive that you are, witnesses will log off on you."

“Near-hit” reporting

7 steps to building near-hit reporting into your safety culture

By: DJ Borbidge

It was a normal day at the plant. A forklift driver was doing the job he had done for years, day in, day out...loading materials from the ground onto a flatbed. Just as he placed the last load, the forks still on the flatbed, the truck pulled out, capsizing the forklift and driver with it. The forklift operator was crushed to death under the weight of the lift truck.

Everyone at the plant was overwhelmed by this incident and by the death of their fellow employee and friend. Corporate office personnel scrambled to investigate. How could this — which was an actual event — have happened?

The manufacturing leader, responsible for safety at this company's plants, traveled to all facilities and interviewed warehouse and shipping workers. He heard over 100 “near-hit” stories, all very similar but with different outcomes. Only luck had prevented a devastating incident and death, like the one described above, from happening before. All these plants are now heavily protected from this type of occurrence. If only near-hits had been reported and acted upon, this death could most likely have been avoided.

What is a near-hit? Some would call it a “close call,” a “near miss,” an “oops!,” a “thank God.” A near-hit is an unplanned event that has a high probability of injury or property loss.

The search for proactive methods of providing a safe working environment has increased in the past few years. What better way is there to prevent incidents than by looking at events that just missed being an incident? Collecting near-hits, determining causes, correcting and communicating them could help reduce incidents and injury rates.

What stymies reporting?

So why isn't near-hit reporting more prevalent in industry? One reason is fear of reprisal and embarrassment. The perceived organizational message may not be positive towards near-hits, treating the incident as a mistake and not as an opportunity to take proactive steps to prevent injuries and promote safety. A near-hit can be very personal. Often an employee is relieved to be okay and doesn't want to think about what could have happened.

In addition, and very important, if near-hit incident reports are collected and the information is not evaluated and disseminated and no action taken, workers will become discouraged and stop sharing. A near-hit form may be inconvenient to fill out, not readily available, or there may be no time allotted to complete it. But, again, near-hits provide an excellent opportunity to learn proactively from what some consider free lessons or just old-fashioned good luck.

In working with manufacturing concerns, my company actively encourages all workers to voluntarily and anonymously submit near-hit reports in their words. Normally, very few decline to do so. At any given facility, we receive hundreds of near-hits that we collate, discuss with employees and make a final analysis. These reports come from all employees, including management, supervisors and hourly workers. Invariably, it is fairly easy to predict the greatest potentials for injuries in that facility. This is especially true when combined with procedural, compliance and behavioral observations with all involved on a daily basis.

However, this process must be built using a positive approach with a goal of creating a safe culture where employees feel comfortable sharing not only safe behaviors (practices), but also unsafe behaviors (practices). This works in concert with safety rules and disciplinary actions being in place. I call it a "process" because it must be done on a continuous and consistent basis.

SHARING principles

Steps to successful integration and acceptance of near-hit reporting can be summed up in a word, “SHARING”:

Simple: Often, companies design forms that are very detailed, complicated and time-consuming. By keeping reporting simple and narrative, and by allowing workers to use their own words to describe a situation, employees are more likely to share. The key is to learn what types of near-hits are occurring, not necessarily all the details involved in the occurrence.

Hourly Employee Team: Successful safety processes employ Hourly Employee Teams. A “near-hit” review team is very helpful in building trust and involvement. Finding safety champions in the hourly workforce to develop a team to promote, review, solicit and develop solutions is a very effective way to encourage reporting of near-hits.

Anonymous: At least initially, it is best to keep reporting anonymous. This applies to relating personal events as well as those witnessed happening to others. NO NAMES... just the event. Until employees are confident that reprisals will not occur from sharing near-hits, anonymity will be more conducive to participation. Once a process is in full swing, the importance of anonymity may dwindle and employees will share openly.

Respond: Once near-hit reports start being submitted, it is important to respond to them. They should be communicated to the entire workforce for their review and input and then acted on. Solutions should be explored and shared.

Involvement: Everyone should be involved. One method of encouraging hourly employees to participate is for management and supervisors to share their personal near-hits (we all have them...whether at work or at home). This can be done in shift meetings. If a manager or supervisor shows willingness to talk about their near-hits, hourly employees may become more comfortable sharing their own.

If a facility is part of a larger corporation, intra-company sharing is strongly encouraged. “Best practices sharing” is an initiative that has been growing stronger in recent years. Who can argue against sharing safety best practices?

Inviting employees’ families to participate can be also very effective. A Plant Safety Activity Day, including families in attendance, is one way of accomplishing this.

Non-punishing: Management and supervision must make a commitment that punishment will not occur when near-hits are reported. This is a sure way to deter participation. It must be remembered that the goal is to improve safety, and by sharing near-hits future incidents could be avoided.

Give Positive Reinforcement/Recognition: It has been documented over and over again that positive reinforcement/recognition motivates people to discretionary effort. Workers will do more work than expected if they are recognized for their work. As near-hit reports are submitted it should be communicated to the workforce that this is a “good thing.”

Building trust

In the words of a great teacher/philosopher: Tell me and I will forget... Show me and I will remember... Involve me and I will understand. And adding our words: Recognize me and I will do it again and again.

Trust is a building process. Positively reinforced participation will provide a foundation to build a sound structure (culture) of sharing.

You don’t need to wait for a serious injury, incident or death in order to analyze what changes need to be made in working conditions or safety practices. Rather, use an incident or near-hit as an opportunity to find and eliminate causes of problems that could result in serious injuries, death or property damage.

It can never be over-emphasized: Employees are a company’s greatest asset and resource. To achieve safety success, do whatever you can to encourage them to share their experiences, knowledge of their jobs and recommendations.

SIDEBAR: It's a good thing...

One of the keys to successfully integrating near-hit reporting into your safety culture is positive reinforcement. By making near-hit reporting a positive experience for your employees, they will more readily participate in the activity.

Plant-wide celebrations that recognize: 1) employees' participation in near-hit reporting, and 2) achieved solutions to the causes of the near-hits, will go a long way toward building trust and active participation by all.

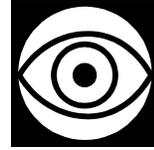
ADDITIONAL INFORMATION

DJ Borbidge has been president of The Human Side, Inc. for the past 12 years. This training & development and industrial consulting company was formed officially in 1992 and incorporated in 1998. At the time of incorporation DJ assumed the position of CEO/president and her husband, Frank Borbidge, joined the firm as vice president/consultant. The main focus of The Human Side has been the development of a cultural/behavioral based approach to safety. DJ can be reached at humanside@msn.com.

TRAIN THE TRAINER



Senses



LEARNING IS STIMULATED THROUGH THE FIVE SENSES:

Your mind, like your muscles, becomes active when the bodily senses are stimulated. The learners who come to you for training are no different. Their sensory equipment must be activated before their mind will realize and accept the facts, concepts and skills you wish to share.

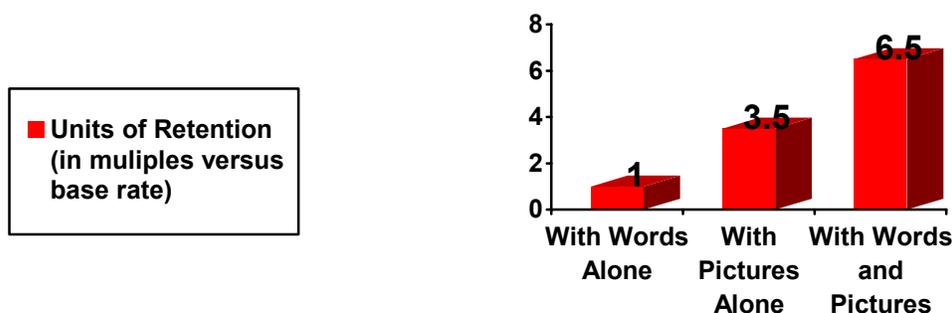
There are few stimuli that will activate all five senses simultaneously. Since you'll have to select among these senses, it will be useful to know that some are much more vital to the learning process than others. Here's a breakdown of how we learn what we know today:

75% through the sense of sight
13% through the sense of hearing
6% through the sense of touch
3% through the sense of smell
3% through the sense of taste

Clearly, visual stimuli should have a large part in the learning process. But, we must also realize that the more senses a student uses while learning, the faster and more efficiently he will learn.

When an instructor uses words alone, students retain some of the facts. They retain more if he uses pictures alone (in fact, 3 ½ times more). But, they retain 6 ½ times more if s/he uses both words and pictures. Now, here's a "picture" of these words:

Learning Through Senses Chart



TO STIMULATE LEARNING THROUGH THE SENSES:

- Use visual stimuli whenever possible to get your point across. Students remember what they see.
- Appeal to several senses simultaneously for the most efficient learning.
- Appeal to several senses simultaneously for the most efficient learning.
- Use strong stimuli for greater response: vivid pictures, loud noises, bright colors.
- Vary the stimuli. Repetition of even a strong stimulus becomes monotonous and weakens the desired response.

A stimulating presentation requires more preparation, but if the subject is worth remembering, it is worth presenting so it will be remembered.

The Dirty Dozen

Troublemakers	How to Handle Them
<p>Eager Beaver- The quick helpful type, first to jump in with an opinion every time. In spite of good intentions this person makes it difficult by keeping others out.</p>	<p>Use them for summarizing. Try to cut across them tactfully by questioning others. Thank them and suggest “we put others to work.” But be careful not to offend them—they will be most useful when the time comes to summarize</p>
<p>The Dampener- This character points out the worst in every idea put forward. Seldom, if ever, does the “dampener” volunteer an alternative.</p>	<p>Ask them to suggest an alternative. Indicate that you understand their objections, and then restate the good points of the suggestion which they offered. Ask other members of the group to comment on their remarks.</p>
<p>Indiscriminating- They are an amiable sort who will agree wholeheartedly with ANY suggestion.</p>	<p>Don’t put too much faith in their opinions. Acknowledge their enthusiastic remarks politely and then ask for the opinions of some other sounder members of the group.</p>
<p>Highly Argumentative- These combative personalities may be professional hecklers or just upset by personal problems. A clash between two such members can divide your group into fractions.</p>	<p>Draw attention to the objective. Emphasize the points on which these two agree. Cut across the argument with a direct question on the topic or bring a dependable member of the group into the discussion. If necessary, ask frankly that personalities be omitted.</p>
<p>Inarticulate- This person needs help. They are ‘getting’ the concepts but find it difficult to express their points to the group.</p>	<p>Repeat their ideas in better language. Don’t twist their ideas more than you must (to coherently clarify to the group). Avoid phrases like “What you mean is...” or “This is what you are trying to say...”</p>
<p>Side Conversationalist- Whether related to the subject or of a personal nature, little side conversations distract members of the group, and especially the speaker.</p>	<p>Try not to embarrass them. Call them by name and ask an easy question, or restate the last remark made by a group member and have the offender express their opinion of it.</p>

Troublemakers	How to Handle Them
<p>The Rambler- This character becomes loquacious on every subject except the one being discussed. After a few of their farfetched analogies, the entire group is hopelessly lost.</p>	<p>Refocus attention on the subject at hand. They have to stop for a breath. When they do, get back on track by restating the relevant points, then move on. Another tactic is to tell them that their point is interesting, and then, with a smile, indicate that they are “a bit off the subject.” As a last resort glance meaningfully at your watch.</p>
<p>I Won’t Talk- Silent Sam/Susie may feel timid, insecure, superior, indifferent or bored. Whatever their reasons, they will not be an asset to the group unless you draw them out.</p>	<p>Your action should depend on what motivates them. Try to arouse their interest by asking them questions. If they are seated near you, ask their opinion as if they are talking to you and not to the group. Toss a provocative query to see if it will stir them. Be sure to sincerely compliment the shy person when they do make a comment.</p>
<p>Inattentive- They are here in body, but definitely not of the mind.</p>	<p>Gain their attention inconspicuously. Ask the day dreamer a specific question, but make it one you know they can answer, or restate an opinion which has been made and ask their perspective. An alternative is to make some comment such as “Would you all think carefully about this next question and form your own answer?”</p>
<p>The Griper- Whether giving loud voice to their pet peeve or a legitimate complaint, the professional griper wastes a lot of precious time.</p>	<p>Remind them of the time constraints. If it is a private matter, tell them you will be happy to discuss it later. Point out to them you are unable to change policy as an individual, and the aim is to operate as smoothly as possible under the present system. An alternative is to have a member of the group answer their concerns (if possible).</p>
<p>Poor Loser- Admitting they are wrong just is not their strong point.</p>	<p>Indicate that you do understand their objections. Emphasize the strong points in their argument first. Then tell them in a friendly manner why you believe their ideas will not work. If they continue to sulk, try to get them interested in something else by asking their opinion about it. If this fails, ignore them (last resort).</p>

Audience: Who are you going to train?

How Adults Learn Best

Attitude

- Adults like to know why something is important for them to learn; including the rationale for their attending the class, facts/statistics to indicate the severity of a problem, and/or examples of what can go wrong if the class topic is ignored.
- Provide a relaxed, comfortable atmosphere where adults can safely explore new ideas; encourage and reward their comments and questions; give immediate recognition of achievement. These contribute to a positive learning environment, which is a prerequisite for participants to have an open, receptive attitude.

Active Participation

- Adults bring a lot of work and life experience to the learning table, on which the trainer can draw for content knowledge and real-life examples.
- The more adults participate in the learning process, the more they will remember the content and apply it. Participation in the learning process may involve asking questions, being part of a discussion group, applying a theory to a practical situation, practicing a skill, describing a process, writing procedures or programs, evaluating products and solving problems.
- Adults need to hear it, see it and practice it for maximum retention of the content. If adults only hear something (lecture mode), they remember 20% of the content; if adults hear it and see it (lecture plus visuals), they remember 50% of the content; if adults hear it, see it, and practice (apply) it, they remember 80% of the content.
- If the topic/content is new to an audience, the trainer needs to provide a context for the content that is meaningful to the audience; that is, it is somehow linked to previous knowledge. Also, new content takes longer to learn and requires more examples and/or more practice.
- The average adult attention span for a lecture in a classroom is 20 minutes.

Repetition for new or difficult concepts

- If the content is new or complex, it needs to be repeated and/or practiced for learning to occur.
- Emphasize main points frequently, using a wide variety of examples.
- Be sure that new or complex material is understood by asking questions of the students or administering a test.
- Ask students to explain a concept in their own words and/or give their own examples. Ask them to explain why their responses are correct or incorrect.
- Even if the concepts are not new or difficult, introductions and summaries should be used to repeat important concepts.

Practical application

- If an idea has immediate usefulness to an adult, it is more likely to be adopted.
- Focus on “real-world” problems.
- Focus on how the learning can be applied.
- Relate the learning to the learners’ goals.
- Can the concepts you teach be applied immediately?
- Are there suggestions you can give to make them more easily applied?

Visuals

- Similar to children, most adults learn best from visuals (charts, diagrams, photos, drawings, flowcharts, props, pictures). Use them as often as possible.
- People learn at different rates and in different ways. About 85% of adults are visual learners. That is, they learn best when there is a visual image connected to the learning. There is a small percentage of auditory learners who learn best by hearing words or sounds. There is also a small percentage of kinesthetic learners who need to physically involve themselves in the learning task; that is, physical movement or patterning is essential to their understanding, involving their arms/hands, legs/feet, whole body or any single body part.

Variety

- Variety in the presentation helps maintain adults’ interest and attention. Variety stimulates the brain and keeps it engaged.
- Variety can be added by changing teaching methods, changing visual aids, changing instructors, changing lighting or location, or even the use of color. Instructors can vary their voice tone, body position (from standing still to walking around to sitting), gestures, facial expressions, and so forth.
- Having fun is a welcome addition, but not a necessity.

Examples.

- Give sufficient and varied examples to explain the concept thoroughly.
- Both theory (big picture) and application (specifics) are usually needed for learning to occur. Adults need examples that drive the point home, along with the main point.
- If the trainer does not have examples, s/he might ask the audience for examples.
- Non-examples can also be given to show the limits/boundaries of the concept.
- Examples should be:
 - ⇒ realistic (not necessarily real)
 - ⇒ relevant
 - ⇒ current (if appropriate)
 - ⇒ sufficiently complex to engage the learner,
 - ⇒ thought-provoking

	High-school Model	Adult learning Model
Motivation for attending class	External; law requires student to attend school	Internal; student chooses to grow/learn; professional advancement; curiosity
Role of teacher	Authoritarian; teacher knows content; gives it to students	All adults know a lot; teacher facilitates/guides learning process; coaches students
Role of student	Student is passive learner	Student is active, participatory learner
Responsibility that learning occurs	Teacher	Student
Teaching strategies	Lecture	Discussion; hands-on activities; field trips; case studies
Structure of curriculum	Rigid, standardized; stand-alone units	Dynamic, versatile, adaptable; integrated with other learning
Interaction between student and instructor	Hierarchical	Cooperative
Evaluation	Test	Self-diagnosis (Student asks, "Did I learn the content?")
End goal	Get an "A"	Learn the content; grow; improve

Training Methods

DISCUSSION

Discussion is talking with a purpose. It is the discussion leader's role to determine the purpose and to guide the discussion. The success of any discussion group depends on how carefully the planning has been done. The discussion leader must be familiar with the subject, identify the goals of the session, draw up a discussion outline and guide, control and summarize the session. Here are some points to keep in mind:

1. Open the discussion with a brief introduction of the subject with carefully planned background data which will help move the group into the subject and outline the general goals of the discussion.
2. If the materials ask specific questions, read them to the group. And, as answers are developed and other questions asked do not forget the word "Why?"
3. Be ready to rephrase questions for better understanding.
4. Try to get as much participation as is possible although do not be discouraged if everyone does not talk. And, do not be afraid of occasional periods of silence after a question is asked. People need time to think.
5. Call on class members from time to time, but in a way that will not embarrass anyone.
6. Give credit where credit is due to group members for their contribution.
7. If there are arguments don't let them degenerate into conflict. Intervene and summarize the difference of opinion and move on.
8. Summarize as you go along - don't wait until the end of the discussion.
9. Stick to the subject. Side trips are all right if the material is relevant, but firmly and tactfully pull the group back to the main subject.
10. Do not force your opinion on the group.
11. Where possible, use illustrations from your own experience.
12. Maintain discipline - pleasantly.
13. End the discussion with a summary of what has been discussed and prepare the way for the next session.

LECTURE

Introduction

1. State learning goals (what students will be able to do at the end of the class with the knowledge gained). Indicate how student achievement will be assessed.
2. Give an overview of the topic. Tell students what you will be talking about, why the subject is important, and how it relates to previous topics in the course, and to their interests, experiences and future educational or vocational activities.
3. Provide an outline of the lecture. Write the main points on the board, use an overhead transparency projector, or distribute a handout.

Content

1. Limit the content to be taught. Some say include about 7 chunks of information in a 45 minute lecture.
2. Explain each major point fully, providing a variety of concrete examples, analogies or illustration of the idea.
3. Present all the ideas essential to your major point (content that students "need to know") before following up with content that is minor or simply "nice to know."
4. Relate ideas and examples to students' experience, future works or interests, or ask students to provide examples from their own experiences.

Presentation

1. Don't read your notes - try to use key words.
2. Vary your movement in the classroom, and voice (volume, speed).
3. Talk to your students, maintaining eye contact with your audience.
4. Use overhead transparencies, slides or handouts to provide variety in your lecture.

Student participation during the lecture

The following procedures facilitate student participation:

1. Ask "open-ended" questions for which there is no single "right" or "wrong" answer, but several possible responses.
2. Ask for questions, but to save time ask for the type of question you want which deals with the main idea. For example, instead of "Are there any questions?" use "Do you have a question about the sequence of steps in doing...?"
3. Redirect a student's question to other students. Invite them to clarify, expand, or comment. Ask for examples from their experience.
4. Give recognition and praise to good questions or answers. For an incorrect statement, select any part that is correct (if possible) and build on that. In any case, "reinforce the try" as well as correcting the error.
5. After making a series of points in your lecture, pose a problem that requires students to apply them. Give students several minutes to jot down an answer and then survey the range of responses and discuss them (if time allows).

Summary of the lecture

During the closing summary of the lecture:

1. Restate your main points.
2. State how the main points relate to previous or future lectures.

BUZZ GROUPS

Buzz groups are small discussion groups composed of three to eight people.

Increased participation can be obtained in a large class by breaking up into buzz groups where more individuals will have an opportunity to take part in the discussion. People are more apt to express themselves freely in small groups.

Mechanics of the buzz group

1. The teacher should designate the number of buzz groups. The students could count off by the desired number of groups. This mixing procedure is important so that each buzz group has a cross section of the opinions represented in the group, rather than only one point of view.
2. A leader and recorder may be selected by each buzz group.
3. The teacher should designate the physical area where each group is to meet. If possible, the groups should meet in separate rooms so not to interfere with one another. If space is limited the buzz groups should swing their chairs into a circle so all members of the group can see and hear each other.
4. The teacher should give each group a specific question or questions for discussion. They may be the same question or different ones. It is preferable that the questions be in writing so each group knows exactly what is to be discussed.
5. The teacher should set the time limit for discussion before breaking into buzz groups.
6. The teacher should give each group a two minute warning so each group can summarize before reconvening.
7. If more than one question has been assigned, group one should be asked to state its findings on question one with supplementary comments from the other groups. Group two should then be asked to report on question two, and so forth.
8. The teacher should summarize the findings.

Advantages of buzz groups

1. Everyone in a large group can take part.
2. The whole group analyzes problems and suggests solutions.
3. This may be the only way to get a majority opinion in a large group.

4. Buzz groups stimulate the thinking of each individual and give more people the opportunity to lead and/or record the group's ideas.

Disadvantages of buzz groups

1. It is sometimes hard to divide a large group.
2. Some groups may start "chatting," not addressing the discussion question.
3. Some groups may not understand the assignment/question.
4. Allow sufficient time for large group feedback following the buzz group discussion.

ROLE-PLAYING

Role-playing is "acting out" of a situation or incident. It's used to center group discussion around some concrete experience.

Writing a role-playing case

1. Pick a problem that can have a number of equally good solutions. If there is a specific answer, the case will not elicit much discussion.
2. Build into each case several -- but not too many -- points for discussion. Some can relate to procedure and others to the content of what is said and agreed to.
3. Make the case both realistic and representative of what might occur in an actual bargaining unit. Something that occurs only once in a blue moon is not worth spending time on.
4. When using a number of the cases, all of them taken together should give you a good cross-section of problems faced.
5. Build into the case some human interest elements to make the case lively as well as informative.
6. Depending on the complexity you want to have, and the time you want to spend, you may wish to have several stages of role-playing. For example,
7. Incorporate enough detail so that the players do not have to make up too much, but not so much detail that they will have trouble grasping all the details.

How to set up the role-play

1. **The physical arrangements.** The members of the group should be seated informally around a cleared part of the room. Everybody should be able to hear and see what is going on. Everybody should be able to participate.
2. **Defining the problem situation.** Ready made role-playing situations present carefully planned case problems. Or you can make up your own or have the group suggest situations they have to face.
3. **Setting the scene.** Be sure everyone understands who the actors are supposed to be and where the action is supposed to take place.
4. **Defining the roles and choosing the actors.**
Ask for volunteers to play these roles. For the first time try to choose people who aren't shy and won't be embarrassed to act the part. Sometimes, it may be appropriate to instruct one or more characters out of hearing of the others.
5. **What the observers do.** Those not taking roles, act as observers. They watch closely what the actors say and do. You may want to provide a form so they can write down what goes on during the scene, and their comments on how the actors handle the situation.
6. **Role-playing begins.** When you have outlined the situation, selected the actors and given them a chance to think over their parts for a minute or two, action begins. Avoid discussing the situation too much before role-playing begins. Discussion comes later.

Usually role-playing scenes run five or ten minutes -- never much more. Be sure to break in and stop the scene after the main points have been made or the actors begin repeating themselves.

Follow-up after the role-play

Reactions of actors: Get the reactions of the actors - how they felt in their roles, what they thought of the arguments of the other actors.

Reactions of observers: Then, throw discussion open to the group (observers). Some of the main points to cover are:

1. Good and bad arguments the actors used.
2. Good and bad approaches or strategies used.
3. Mistakes or omissions.
4. Suggestions for other lines of action or other arguments.
5. Ask the group "How else might this have been handled?"

NOTE: In discussing the good and bad points of the role-playing, use the role - names of the actors. Keep personalities out of the problems. Don't let the actors become personally involved.

Variations on role-playing

1. Have the group make up their own cases, scenes, actors. (New problems may grow out of discussion of cases already acted out. These can be handled through role-playing, too.)
2. Have actors reverse roles
3. Have two complete casts play the same situation (some of the observers probably think they could do better - this gives them a chance to try).
4. Have a recording device handy. Record the scene, refer to the recording to clear up any confusion that may come up during discussion.
5. Include everyone in the audience in the role-play by having many simultaneous role-plays. Then follow-up with discussion about effective strategies, the outcomes, how the actors felt, and so forth.

Advantages of role-playing

Role-playing is especially productive in a small group. It's one way for everybody to explore problems together. Through role-playing the group can:

- Test ideas and plans of action in practice situations;
- See how it feels to do something face-to-face (in a discussion you just talk about it);
- Discuss the problems revealed by the "act"; analyze how it might have been done better;
- Have fun (people learn best when they can relax and enjoy themselves).

Disadvantages of role-playing

1. Some people are very self-conscious when "acting."
2. If the role does not have enough flexibility, the outcome may be oversimplified.
3. The role-play may seem artificial or forced.

CASE STUDIES

The advantage of the case method is that it requires a class to consider a problem, much as they would have to do in real life, and to use both facts and judgment in solving the problem. It also gives the class a common basis for discussion.

Characteristics of a good case study

1. It is specific as to detail, yet can be handled in several different ways.
2. It is interesting and realistic; anyone could recognize this as a familiar situation.
3. It forces the class to take facts into account and exercise judgment in handling the problem.
4. It forces the class to talk about a common problem and guarantees that they will have the same set of facts and conditions in mind.
5. It requires the class members to put themselves in the player's shoes and consider the case as if it were happening to them.

BIBLIOGRAPHY

Adapted from S. Fanny Simon, Teaching Methods and Techniques in Labor Education

Adapted from "Teaching Practices and Techniques," International Association of Machinists (IAM), Education Department, Placid Harbor, Maryland

QUESTIONS

The question is not only a useful but a highly versatile tool. A good teacher tries to talk as little as possible and makes the students do the talking. This is achieved by asking the right kind of questions. Questions can help you:

1. **Begin a discussion.** The fastest way of getting a discussion under way is to ask a thought-provoking question.
2. **Arouse interest in the subject under discussion.** A question containing an element of controversy is most likely to achieve this.
3. **Direct the thinking of the group.** Suppose your lesson deals with the problem of how to get workers to attend union meetings, and you wish to direct their attention to the fact that the apathy of the members might be the fault of the leaders. You do that by asking, "To what extent, would you say, that the apathy is the fault of the leaders?"
4. **Determine the students' understanding or knowledge.** You have taught the idea of inflation and now you wish to know whether they know what inflation is. By simply asking them, "What do you mean by inflation?", you know whether they have the idea or not. If you wish to test their understanding, all you need do is ask this question, "How can one tell whether there is inflation?"
5. **Get participation from a particular student.** You call her name and ask her the question directly.
6. **Obtain information or opinion.** What does the contract say about overtime?
7. **End or limit the discussion.** In that case, you would say, "It seems to me that we have sufficiently considered this point (or topic). What do you think?"
8. **Reach a conclusion or agreement.** "How can we, on the basis of the facts presented, say what makes unions strong?". Or, "Can we agree that these are the reasons why unions are strong?"

Types of Questions

Questions based on mental processes:

1. **Information or facts for the purpose of knowledge.** Example: What is the organizational structure of the union?
2. **Interpretation** from which inferences are drawn from known facts. Example: Why do workers join unions?

3. **Comparison** in which relations are sought. Example: Which unions are more effective, industrial or craft?
4. **Causal reasoning** which seeks the reasons behind facts. Example: Why is collective bargaining necessary?
5. **Analysis** which examines the elements of a statement or object. Example: What makes this contract a good one?

Techniques in asking questions

For maximum effect, the manner as well as the right question is important. Here are suggestions which you might consider:

1. Vary your questions. The majority of them should be questions which encourage students to think.
2. Insist on getting a complete and fully developed answer.
3. Speak distinctly so that everyone can hear the question.
4. Pause after asking a question before naming an individual to answer. This is important to give the members time to reflect and formulate their answer.
5. Do not repeat answers except when needed for emphasis.
6. Encourage students to ask and repeat the question to make sure that everyone heard it.
7. Avoid calling always on those who appear to know the answer.
8. Reword the question if it is not clear and give an example to clarify the meaning if necessary.
9. Ask for more than one answer and avoid rapid fire questions.
10. Be sure that your manner is pleasant.

The Art of Asking Questions Engaging Adults in the Learning Process

The more engaged the adult is in the learning process, the more s/he will retain and the more likely s/he will be to implement changes back in the workplace. Asking questions of your adult audience is one method of engaging them.

Tips on asking questions of your audience in a classroom environment:

- Start early in the class to ask the audience questions. Don't wait until the end of the class. The sooner adults are engaged, the more they will participate throughout the class. (Icebreakers are a good technique to use.)
- Start with easy questions, even yes-no questions, to build audience confidence in your reaction to their answers.
- Most adults care what the instructor thinks of their answers. As an instructor, if you want adults to participate and answer your questions, you need to affirm every answer given by students and find something valuable to say about it.
- Don't rush to answer the question yourself. Be patient with your audience and be comfortable with your own silence. You may have to wait a while, if you have a shy audience. After 15 seconds, restate the question, then wait again.
- Methods of audience participation include: large group discussion (entire class), small group discussion (3-6 people) and turn-and-talk (2 people).
- Adults will follow easy directions, such as: Form small groups of 4-6 people and brainstorm ideas for creating a safer workplace. One person please take notes. You will have two minutes.

Types of questions to ask adults to engage them in the learning process

1. Ask adults to evaluate

- Prioritize items from high to low
- Put items in sequence (first to last)
- What is the value or importance? (high to low)
- Who should perform a task? (employee, supervisor, manager, CEO)
- Which methods/strategies work best for you?
- Locate where your company is on a continuum (of safety, of efficiency, of leadership, of bottom-up organization, etc.)

2. Ask adults to compare...

- Before/after, old/new
- Two models/philosophies
- What to do, what not to do to reinforce safe behaviors
- Permit-required and non-permit required confined spaces

3. Ask adults why...
 - Why do employees get injured?
 - Why doesn't management value safety?
 - Why is competent person needed?
4. Ask adults to decide/plan
 - What action to take
 - Who to involve
 - How to implement
 - When is the best time to.....
5. Ask adults open-ended questions...
 - What methods of communication do you use to promote safety?
 - How do you get workers to wear their hard hats (or other PPE)?
 - What factors contribute to an accident?
6. Ask adults to share their experience in their workplace
 - Share wisdom/advice with other students
 - Share how you got management support for your safety program.
 - Share methods to get employees actively involved in the safety program.
 - Share success (or roadblocks) in implementing a wellness program.
7. Ask adults to brainstorm
 - Ideas
 - Methods/strategies
 - Problems
 - Solutions
8. Ask adults to problem-solve
 - Open-ended case studies or scenarios
 - One student's description of a difficult problem
 - With limited time and money, how can you conduct an effective safety meeting?
 - If your safety team is not functioning, what can you do to help?
 - How can you train 70 people on Lockout/Tagout procedures?
9. Ask adults to think creatively
 - If you have unlimited budget and were put in charge of safety with top management support, what would you do?
 - Describe the worst safety environment you can imagine.
 - Describe the safest workplace in the world.

10. Show adults a matrix and ask them to fill in the blanks.

Example:

	Essential tasks	Non-essential tasks
Employees		
Supervisors/managers		

11. At the beginning of class, ask adults easy questions:

How many of you drove more than 30 minutes to get here?

How many of you have a safety program in place?

How many of you have attended the annual Safety Congress?

How many of you have borrowed videos from the video library?

How many of you have attended other Training Center classes?

How many of you are attending a DSH Training Center class for the first time?

12. At the end of class, ask adults:

- What one new thought or idea are you taking back to your workplace with you?
- What one action step (toward a safer workplace) are you committed to take when you return to work?
- (Ask for volunteers to share their ideas or ask them to turn-and-talk to share their ideas.) This can take as little as 30 seconds.

The more engaged the adult is in the learning process, the more s/he will retain and the more likely s/he will be to implement changes back in the workplace.

QUESTIONNAIRES

A questionnaire is one of the best ways for a group to learn if the material to be discussed lends itself to this approach. The questionnaire can be handed out or questions can be written on the board.

Advantages for the instructor

1. It is an automatic discussion starter.
2. It can help in organizing your material.
3. It avoids lecturing and helps determine students' understanding.
4. A question can be used to open a broader discussion.
5. It keeps you and the class on the track.

Advantages for the group

1. It helps promote individual participation and arouse interest.
2. It focuses attention on one thing at a time.

Disadvantages of using Questionnaires

1. People think they are being tested. This makes it **extremely** important to state at the beginning that it is not a test and that it does not have to be handed in.
2. People may become discouraged if they cannot answer at least some of the questions. (This makes it important to include at least a few easy questions, possibly some questions asking for opinions. If the material is difficult and new, then the questionnaire can be used as a discussion guide without asking the people to try to individually answer the questions first.)

Hints for Excellent Presentations

1. Prior to training, make an on-site visit to get acquainted with your audience.
2. On the day of training, get there early and set-up the room 20-30 minutes before class, adjusting the setting as needed.
3. Meet/greet participants as they show up, chat with them, put them at ease.
4. Adjust to the facility. Don't criticize the facility, equipment, or size of room in front of the participants.
5. Mix and mingle during breaks, during small-group discussions and lunch (to establish rapport, show you care about the participants and their problems, answer individual questions).
6. During your informal discussions with participants, listen for examples and problems you can mention in subsequent sessions.
7. Modify exercises to fit students (change case study example or add more hands-on activities etc.)

Adapted from an article by Broardwell & Broardwell "Reaching for Rapport" in *Training*, September 1987, pages 1-4.

Other hints:

- Don't apologize to the audience for lack of equipment, poor visuals, or your lack of planning. Apologies give the impression that you have not prepared or communicated adequately. Be resourceful and adapt as necessary.
- Create a positive learning environment by listening carefully to participants' questions and concerns, responding respectfully, and acknowledging their viewpoints, continually encouraging them to be agents of positive change in their workplace.
- Ask a colleague to observe your instruction and give constructive feedback in order to improve your presentation skills and audience interactions.

Etiquette Among Multiple Instructors

The goal is to present complete and cohesive instruction to the audience when using several instructors, so that they complement each other, providing support for each other.

Here are some suggestions for presenting with multiple instructors:

1. Plan the presentation together
 - * Agree on the start/end time of the entire presentation, as well as each individual presenter's section. Plan who does what.
 - * Plan the segue (hand-off) between each presenter's section to make sure the audience knows how your content "fits" together.
 - * Watch for holes and overlaps in the content, duplication of stories, examples and jokes, so the whole presentation runs smoothly.
2. Remain in the room while the other instructor presents, sit quietly in the back of the room, don't side-talk with others in the room, don't fidget or rustle papers, and don't fall asleep!
3. When you are not presenting, listen for any errors that your co-instructor makes, then gently point them out during the next break so that the co-instructor can correct herself/himself at the beginning of the next section.
4. Don't interrupt the instructor who is presenting unless the two of you have agreed ahead of time that this is OK.
5. Don't argue with the other instructor in front of the audience. If there is a disagreement, present it to the audience as a difference in philosophy, but be careful not to convey hostility.

Dealing with a Student's Negative Feedback

- Clarify the negative feedback, if needed.
- Express your appreciation for the negative feedback, explaining your goal of continuous improvement.
- Support individual differences -- different people believe different things and that's OK.
- Assure the participant that his/her ideas will be considered, if they will be. Take a minute to write down the idea. If appropriate, ask for the participant's name/phone number to credit him/her with the idea or contact later for elaboration on the idea.
- Explain why his/her ideas are not possible, if they are not. Possible reasons include:
 - lack of resources, such as time, money, space, staff, materials, equipment,
 - philosophical differences, and/or
 - policy or procedural conflicts.
- Ask for comments/reactions from others in the audience to the participant's ideas, if you want to pursue the idea.

Reasons for Using Visual Aids

1. To attract and maintain attention
2. To reinforce main ideas
3. To illustrate and support the spoken word
4. To minimize misunderstanding
5. To increase retention
6. To add a touch of realism
7. To save time and money
8. To aid in organizing your thoughts
9. To ensure covering key points
10. To build confidence in yourself
11. To open the presentation
12. To conclude or summarize the presentation
13. To present data in understandable ways
14. To make comparisons
15. To show relationships
16. To explain new concepts
17. To channel or guide discussion
18. To show items too big or small to have in the classroom

SUGGESTIONS FOR OVERCOMING FEAR OF SPEAKING BEFORE A GROUP



- Know the material well (be an expert).
- Practice your presentation (pilot test, and possibly video-tape yourself).
- Use involvement techniques (participation).
- Learn participants' names and use them.
- Establish credibility early.
- Use eye contact to establish rapport.
- Take a course in public speaking.
- Exhibit your advance preparation (via handouts, etc.).
- Anticipate potential problems (and prepare probable response).
- Check in advance the facilities and AV equipment.
- Obtain information about the group in advance (through observation or questionnaire).
- Convince yourself to relax (breath deeply, meditate, talk to yourself).
- Prepare an outline and follow it.
- Manage your appearance (dress comfortably and appropriately).
- Rest up so that you are physically and psychologically alert.
- Use your own style (do not imitate someone else).
- Use your own words (do not read).
- Put yourself in your trainees' shoes (they are asking, "What is in it for me?").

Accident Analysis *WORD SCRAMBLE*

E	N	V	I	R	O	N	M	E	N	T	I	K	N	T
S	R	W	E	I	V	R	E	T	N	I	O	D	A	R
P	S	U	A	N	A	L	Y	S	I	S	Z	O	M	O
E	Y	N	L	E	V	I	D	E	N	C	E	L	U	P
T	E	G	N	I	R	E	H	T	A	G	P	A	H	E
S	N	O	I	T	A	D	N	E	M	M	O	C	E	R
R	B	F	P	I	N	F	O	R	M	A	T	I	O	N
U	C	O	N	C	L	U	S	I	O	N	S	S	W	E
O	B	P	S	N	O	I	T	S	E	U	Q	Y	A	T
F	V	M	A	N	A	G	E	M	E	N	T	H	H	T
D	T	F	V	T	N	E	D	I	C	C	A	P	C	I
I	N	V	E	S	T	I	G	A	T	I	O	N	Z	R
L	A	S	U	A	C	R	F	A	C	T	O	R	S	W
U	S	H	S	A	T	P	E	Q	C	G	V	X	P	W
A	R	K	D	J	T	A	L	E	B	P	I	U	J	E

Directions: Find the words listed below in the Word Scramble. Sometimes the two-word clues will be found separately. One word from the list below is missing from the Word Scramble. Which one is it?

Investigation kit
 Physical evidence
 Interview questions
 Accident tree

Four steps
 Information gathering
 Analysis & conclusions
 Recommendations
 Written report

Causal factors
 Management/Process Failure
 Environment
 Material
 Task
 Human

ACCIDENT ANALYSIS QUIZ

1. An accident is an _____ event that _____ the completion of an activity, and that may (or may not) include _____, _____ or _____ damage.
2. Describe a “near miss.”
3. What three costs are included in the direct cost of an accident?
4. Name at least three indirect costs of an accident?
5. Indirect costs of an accident can range from _____ to _____ times the direct costs of an accident.
6. Name the four main reasons that we analyze accidents.
7. TRUE or FALSE. An accident analysis could lead to the discovery of fraud.
8. TRUE or FALSE. An accident analysis will always lead to the discovery of fraud.
9. Why is it necessary to have a written accident analysis program?
10. Whose job is it to provide possible solutions to causal factors of accidents?
 - A) Program Administrator (Safety Director)
 - B) Supervisors
 - C) Employees
 - D) None of the above
 - E) All of the above

11. Name the five causal factors of accidents.

12. TRUE or FALSE. In most cases of accident analysis, there is only one causal factor involved.

13. Name the four main steps of accident analysis.

14. Choose the items that could be used for proactive utilization of data.

OSHA 300 Log	First Aid Logs	Accident Reports
Maintenance Records	Employee Suggestions	Employee Interviews
Vendor Interviews	Trade Associations	Workplace Audits

15. Name three data points that could be used to evaluate trends.

16. When you return to your worksite, what will you do to convince others of the importance of doing accident analysis?

17. TRUE or FALSE. After accident analysis training has been completed, employees should be given the opportunity to apply their newly acquired skills.

18. How could you accomplish Item 17 without waiting for an accident to occur at your facility?

EXTRA CREDIT: (Fill in the blanks)

If you always _____ what you always _____, you will always _____ what you have always _____.

CASE STUDIES

Video Summary:
“Accident Investigation in the Workplace”
Summit Training Source
Grand Rapids, Michigan
1-800-842-0466

This 22 minute video opens depicting the events that lead to an accident suffered by a maintenance worker at a snack food factory. You will be led, step-by-step, through the process of investigating the accident. Details on preserving and gathering evidence, interviewing those who have information regarding the accident, collecting background information, analyzing the data, and making recommendations are included. A logic diagram using the Management Oversight Risk Tree (MORT) system is used to document the factors identified as having influenced events contributing to the accident.

You may wish to use the worksheet below to record the accident factors you observe.

Case Study

Accident Factors	Preventive Measures

Full description of the accident:

Frank (supervisor) instructed Jim to repair the light located above _____ (insert location)

At the same time, Alice (another supervisor) directed Tom to remove some boxes of packaged product from his area and bring more material to the department.

When Tom was traveling from the warehouse to the production department, he encountered Jim on the stepladder in the _____ (insert location). Unable to stop or avoid the ladder, Tom struck the ladder with Jim on it. The ladder was knocked out from under Jim. Jim fell onto the top of the load Tom was moving from the warehouse, then onto the floor. Jim's left leg broke when it struck against the overturned ladder.

What factors led to the accident?

Frank supervises Jim in the maintenance department. Frank instructed Jim to repair the light _____ (enter location) because it had been reported as not working properly. Although Jim wanted to leave work early for a trout-fishing tournament, he agreed to repair the light. There is no company policy to protect workers when work is being performed in an aisle or doorway. Jim selected the tallest stepladder and set it up so he could inspect the light. Jim was on the next to the top step of the ladder when Tom struck the ladder.

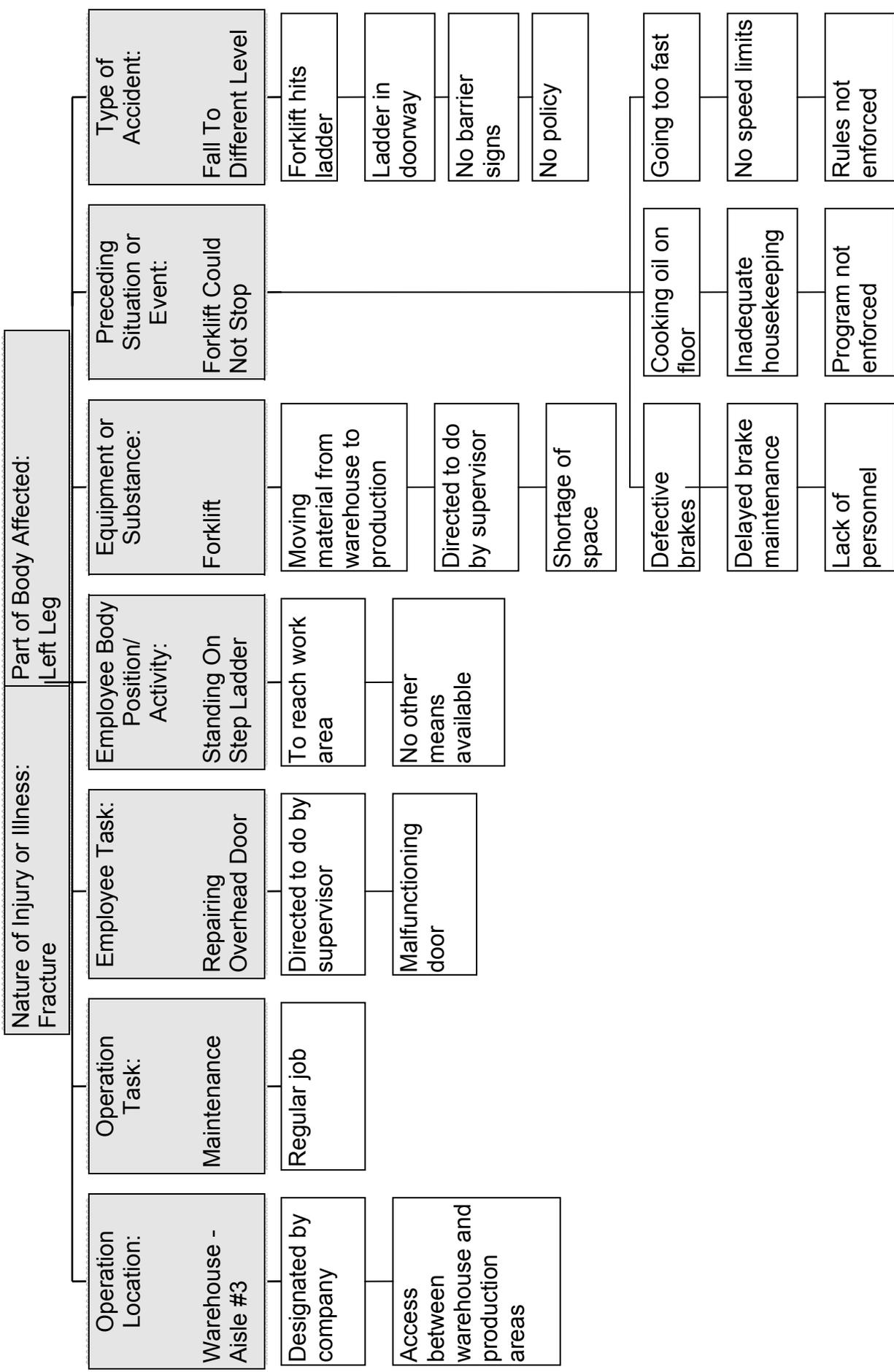
Frank is also responsible for the maintenance of the company's forklifts. He admits that due to the lack of personnel, the brakes on Tom's forklift had not received proper maintenance. Frank has not taken forklifts needing maintenance out of service.

As a forklift operator, Tom receives direction to move material from all supervisors. Alice supervises the production departments. Since there is a shortage of storage space in her department, she instructed Tom to remove some packaged material from the department and to bring more boxing material to the area. Tom acknowledged to Alice that the forklift's brakes were not working properly after narrowly missing Alice with the forklift. Tom had previously reported the bad brakes to maintenance, but continued to operate the lift even though repairs had not been done. Alice and at least one other witness reported that Tom operated the forklift too fast in the vicinity of the incident.

Earlier on the day of the accident, another employee told Alice that there was some liquid on the floor near the site of the incident. Alice did not inform anyone of the spill nor direct it to be cleaned up.

Preventative measures for Jim's accident:

- Purchase scissors-lift
- Conduct scissors-lift training
- Hold maintenance man accountable for standing on step-ladder unsafely
- Conduct ladder safety training
- Develop and implement a fall protection program
- Analyze the need for additional production storage space
- Develop and implement a forklift inspection program
- Develop and implement a planned maintenance program for forklifts
- Develop and implement a "deadline" policy for all powered equipment
- Hold supervisor accountable for allowing the forklift with brakes needing repair to be operated
- Clean-up spills immediately
- Encourage all employees to practice good housekeeping
- Hold supervisor accountable for not responding to report of spilled material
- Purchase and install convex mirrors at all blind corners
- Hold forklift operator accountable for operating the forklift unsafely
- Conduct forklift refresher training
- Hold supervisor accountable for not enforcing safe operation of forklift rules
- Develop and implement a worksite barricade policy
- Purchase worksite barricades



Fully describe accident:

Frank instructed Jim to repair the overhead door in aisle #3.

At about the same time, Alice directed Tom to remove some boxes of packaged product from her area and to bring more boxing material to the department.

When Tom was traveling from the warehouse to the production department, he encountered Jim on a stepladder in the middle to the doorway. Unable to stop or avoid the ladder, Tom struck the ladder with Jim on it. The ladder was knocked out from under Jim. Jim first fell onto the top of the load Tom was moving from the warehouse; then onto the floor. Jim's left leg broke when it finally struck against the overturned ladder.

Supervisors Accident Investigation Report

(ALL INJURIES MUST BE REPORTED TO FIRST AID)

COMPANY OR ORIGIN XYZ COMPANY		DEPARTMENT NAME AND NUMBER MAINTENANCE	
EXACT LOCATION AND GENERAL AREA SHOP FLOOR		DATE OF OCCURRENCE. 6/1/00	TIME <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M. 3: 00
PERSONAL INJURY		PROPERTY DAMAGE	
INJURED'S NAME AND SOCIAL SECURITY NUMBER JIM SMITH		PROPERTY DAMAGED NONE	
OCCUPATION MAINTENANCE	INJURED BODY PART LEG & HEAD	NATURE OF DAMAGE	
NATURE OF INJURY HURT LEG & HEAD		OBJECT/EQUIPMENT/SUBSTANCE CAUSING INJURY	
OBJECT/EQUIPMENT/SUBSTANCE CAUSING INJURY FORKLIFT		PERSON(S) WITH MOST CONTROL OF OBJECT/EQUIPMENT/SUBSTANCE	
PERSON(S) WITH MOST CONTROL OF OBJECT/EQUIPMENT/SUBSTANCE TOM BROWN		ESTIMATED COSTS	FOR INTERNAL USE – DO NOT COMPLETE

DESCRIBE CLEARLY HOW THE ACCIDENT OCCURRED:

TOM RAN INTO JIM'S LADDER WITH HIS FORKLIFT

Example of
bad report

WITNESS: **NONE**
LEAD ON DUTY:

DESCRIBE CLEARLY HOW THE ACCIDENT OCCURRED:

TOM'S FORKLIFT COULDN'T STOP.

WHAT ACTION(S) HAS OR WILL BE TAKEN TO PREVENT RECURRENCE? PLACE X AND DATE BY ITEM(S) COMPLETED

TELL TOM TO BE MORE CAREFUL NEXT TIME.

WHO GAVE FIRST AID, IF ANY _____ DID INJURED LEAVE WORK? _____ TTME _____ A.M. / P.M. DID INJURED RETURN TO WORK? _____ TTME _____ A.M. / P.M.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">REPORT COMPLETED BY</td> <td style="width: 20%;">DATE</td> <td style="width: 20%;">EXTENSION</td> </tr> <tr> <td style="text-align: center;">STEVE MILLER</td> <td></td> <td style="text-align: center;">6/2/00</td> </tr> <tr> <td>REPORT COMPLETED BY</td> <td>DATE</td> <td>EXTENSION</td> </tr> </table>	REPORT COMPLETED BY	DATE	EXTENSION	STEVE MILLER		6/2/00	REPORT COMPLETED BY	DATE	EXTENSION
REPORT COMPLETED BY	DATE	EXTENSION								
STEVE MILLER		6/2/00								
REPORT COMPLETED BY	DATE	EXTENSION								

BWC

**Ohio Bureau of Workers' Compensation
Division of Safety & Hygiene**

Workers' Compensation
claim # _____
OSHA 300 case/file # _____

ACCIDENT ANALYSIS REPORT

PART 1 IDENTIFICATION INFORMATION

Employee Name JIM SMITH
Date of Accident 6/1/00 Time 3:00 AM PM
Occupation MAINTENANCE Shift 1st
Department MAINTENANCE ID 000

PART 2 SUPPLEMENTARY INFORMATION

Company XYZ COMPANY
Mailing Address 0000 ANY STREET
DAYTON OHIO 45401
City State Zip Code

Telephone (000) 000-0000
Establishment Location (if different from above) (SAME AS ABOVE)

Accident Location Same as establishment? On premises? (Check if applies)
WAREHOUSE AISLE #3

Employee Address 000 SOME STREET
DAYTON OHIO 45401
City State Zip Code

Telephone (000) 000-0000 Social Security Number 000-00-000

Sex MALE Age 32 Date of Birth 03/31/68

Was injured person performing regular job at time of accident? Yes No

Length of service: With employer 6 YRS On this job 5 YRS

Time shift started 7:00 AM PM Overtime? Yes No

Name and address of Physician DR. DOCKTOR
DAYTON OHIO 45401
City State Zip Code

If hospitalized, name and address of hospital DSH HOSPITAL
DAYTON OHIO 45401
City State Zip Code

Fatality? Yes No If Yes, date of death _____

If death, attach Coroner's Report.

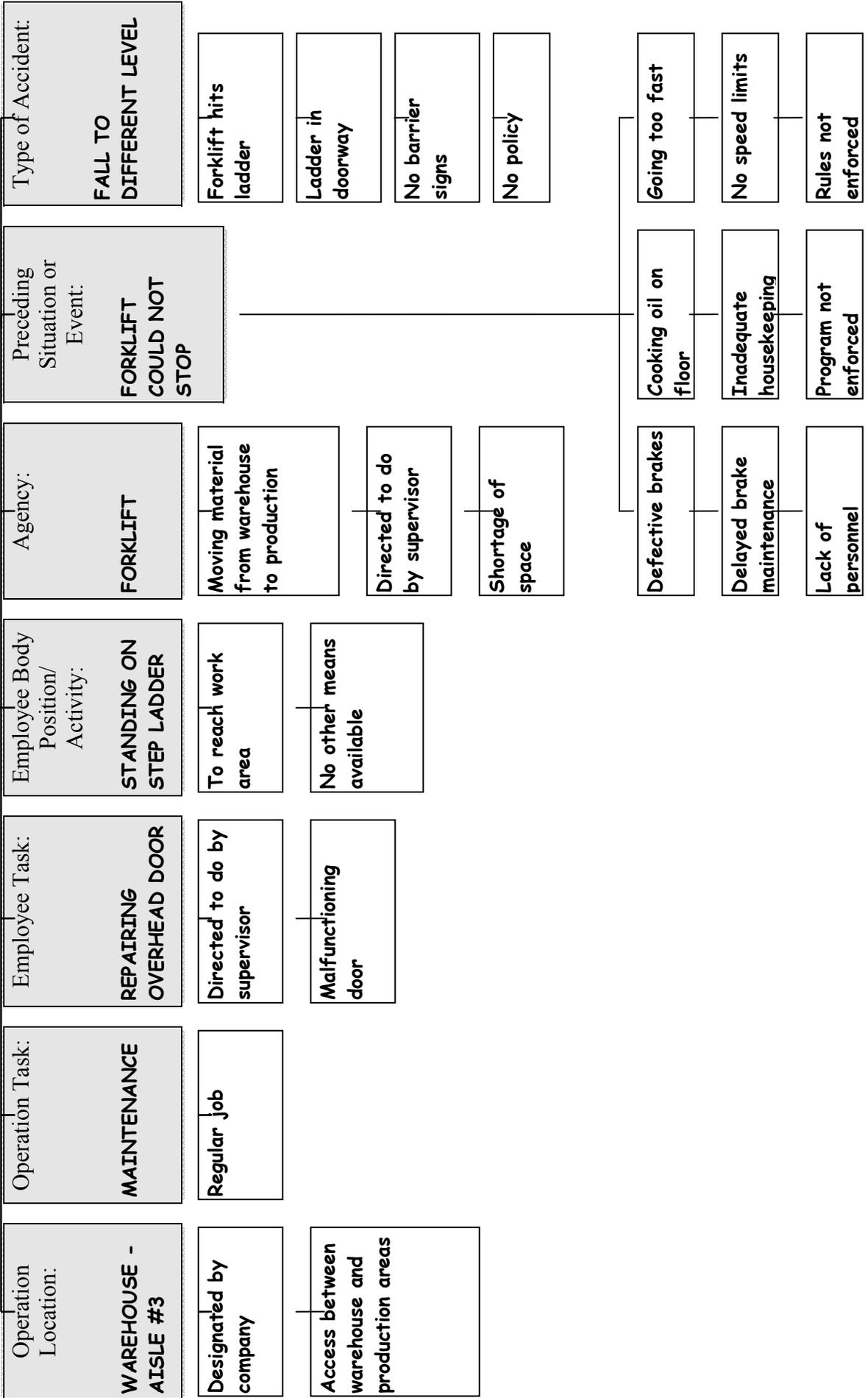
PART 3

ACCIDENT TREE

(Refer to Instructions)

Nature of Injury or Illness:
FRACTURE

Part of Body Affected:
LEFT LEG



PART 4 DESCRIPTION AND ANALYSIS

Fully describe accident: (SEE ATTACHMENT #1)

Attach photographs of accident scene and machinery/equipment.

What factors led to the accident (from Accident Tree in Part 3)? (SEE ATTACHMENT #2)

MACHINERY/EQUIPMENT INVOLVED

Manufacturer MULE, INC. Equipment Age 10 YEARS

Serial No. A123456 Model RAH SERIES

Function MECHANICAL MATERIAL HANDLER

Location PRODUCTION AND WAREHOUSE

- 1. Has machine/equipment been modified? **NO**
- 2. Was it guarded properly? **YES**
- 3. Was there any mechanical failure? **NO**

To answer these questions, research and attach equipment history, maintenance history, relevant photographs and other reports and comments.

CONSTRUCTION N/A

If construction-related, date of contract _____

Is firm General Contractor or Subcontractor

Names of other contractors _____

WEATHER/ENVIRONMENTAL CONDITIONS (temperature, housekeeping, lighting, work surfaces, etc.)
COOKING OIL ON FLOOR; BLIND CORNERS

TRAINING

Did employee receive specific training or instructions relating to safety and health on the job being performed?

Yes No

If Yes: Type: _____

Instructed by: _____

When instructed: _____ Length of training _____

Attach appropriate training documentation.

PART 5 SPECIFIC ACTION THAT WILL BE TAKEN

ITEM #	DESCRIPTION	ROUTE TO	TARGET DATE
SEE ATTACHMENT "PREVENTIVE MEASURES FOR JIM'S ACCIDENT"			

WHAT ADDITIONAL ACTIONS SHOULD BE CONSIDERED?

Completed by: STEVE MILLER Date of Investigation 6/1/00

Title: SAFETY COORDINATOR

Reviewed by: _____ Date _____

Reviewed by: _____ Date _____

- Attach individual statements from :**
- (a) the injured worker
 - (b) any witness(es) or others with contributing information
 - (c) the employer.

For each statement, include name, job title, home address, home telephone number, and the date the statement was given.

INSTRUCTIONS

OSHA 101 FORM COMPATIBILITY--When fully completed, this report is believed to satisfy the requirements of the OSHA 101 form.

COMPLETION OF THIS REPORT--Parts 1 and 2 may be filled out by office personnel or other staff assigned this function. Parts 3, 4 and 5 **must** be completely filled out by the first line supervisor, in coordination with plant manager and safety director.

PROCEDURE FOR COMPLETING PART 3--ACCIDENT TREE

A. Fill in the top blocks of the tree.

Describe the NATURE of the injury or illness.

This could be a strain, sprain, laceration, contusion, abrasion, carpal tunnel syndrome, and so forth. Write in the space provided at the top of the tree.

Determine the PART OF THE BODY AFFECTED (such as right index finger, shoulder, lower back, and so forth.) and place this information in the adjacent space provided at the top of the tree.

If these specific details are not fully known at this time, do not wait to perform the investigation! Fill out as much as possible and continue.

If investigating accident or near miss, write *none* in "Nature of Injury or Illness" and "Part of Body Affected" blocks, and continue to next row of tree.

B. Fill in the next row of the tree.

1. Operation--Location

Where is the work being performed? Example: Working in assembly area.

2. Operation Task

On a larger scale, what specific operation is being performed? Examples: Milling keyway in shaft; Stocking shelves.

3. Employee Task

What specific task was the employee performing? Examples: Employee lifting box; Employee was fastening bolt.

4. Employee Body Position/Activity

Briefly describe the position required by the activity that relates to the accident, injury or illness. Examples: Wrist flexed forward; Hands grasping box.

5. Equipment or Substance

What is the equipment or substance which was directly involved in the accident, injury or illness? Examples: The machine or object struck against; The vapor or contaminant inhaled or swallowed; The object lifted, pulled.

6. Preceding Situation or Event

Determine important event(s) that led to the accident, injury, or illness. These may be considered as "triggering events", situations, or circumstances necessary for the accident to occur.

7. Type of Accident

What general type of accident occurred? Examples: Fall off a platform; Slipped on oil; Struck by machine tool; Contact with electricity; Exposure to hazardous substances.

C. Trace each factor in more detail.

Work from each of the factors identified above. Ask why each of the factors is necessary, or why they occurred. Under each factor, write the key words describing "why", and draw a line to connect the two. It is possible for there to be more than one reason "why" under each factor, so be sure to include all that you discover.

D. Repeat the process--build the tree.

The process in step three can be repeated until all questions are answered for each path of the tree. Dead ends are either unanswered questions that require additional investigation or pathways that have been resolved as far as practical.

Attachment # 1

Fully describe accident:

Frank instructed Jim to repair the overhead door in aisle #3.

At about the same time, Alice directed Tom to remove some boxes of packaged product from her area and to bring more boxing material to the department.

When Tom was traveling from the warehouse to the production department, he encountered Jim on a stepladder in the middle to the doorway. Unable to stop or avoid the ladder, Tom struck the ladder with Jim on it. The ladder was knocked out from under Jim. Jim first fell onto the top of the load Tom was moving from the warehouse, then onto the floor. Jim's left leg broke when it finally struck against the overturned ladder.

*Example of
better report*

Attachment # 2

What factors led to the accident?

Frank supervises Jim in the maintenance department. Frank instructed Jim to repair the fire door located between the warehouse and production area because it had been reported as not working properly. Although Jim wanted to leave work early for a trout-fishing tournament, he agreed to repair the door. There is no company policy to protect workers when work is being performed in an aisle or doorway. Jim selected the tallest stepladder and set it up so he could inspect the door's mechanical linkage. Jim was on the next to the top step of the ladder when Tom struck the ladder.

Frank is also responsible for the maintenance of the company's forklifts. He admits, that due to lack of personnel, the brakes on Tom's forklift had not received proper maintenance. Frank has not taken forklifts, needing maintenance, out of service.

As a forklift operator, Tom receives directions to move material from all supervisors. Alice supervises the production department. Since there is a shortage of storage space in her department, she instructed Tom to remove some packaged material from the department and to bring more boxing material to the area. Tom acknowledged to Alice that the forklift's brakes were not working properly after narrowly missing Alice with the forklift. Tom had previously reported the bad brakes to maintenance but continued to operate it since repairs were not being done. Alice and at least one other witness reported that Tom operated the forklift too fast in the vicinity of the doorway.

Earlier on the day of the incident, Kathy told Alice there was some cooking oil on the floor of the doorway from production to the warehouse. Alice did not inform anyone of the spill nor direct it to be cleaned up.

Preventive Measures for Jim's Accident

- Repair fire-door (and investigate why it was not working properly)
- Develop and implement LOTO procedure for all fire-doors
- Purchase scissors-lift
- Conduct scissors-lift training
- Hold maintenance man accountable for standing on step-ladder unsafely
- Conduct ladder safety training
- Develop and implement a fall protection program
- Analyze the need for additional production storage space
- Develop and implement a forklift inspection program
- Develop and implement a planned maintenance program for forklifts
- Develop and implement a "deadline" policy for all powered equipment
- Hold supervisor accountable for allowing the forklift with brakes needing repair to be operated
- Clean-up spills immediately (and investigate how the oil was spilled)
- Encourage all employees to practice good housekeeping
- Hold supervisor accountable for not responding to report of spilled oil
- Purchase and install convex mirrors at all blind-corners
- Hold forklift operator accountable for operating the forklift unsafely
- Conduct forklift refresher training
- Hold supervisor accountable for not enforcing safe operation of forklift rules
- Develop and implement a worksite barricade policy
- Purchase worksite barricades

ACCIDENT REPORT

This is a bricklayer's accident report, which was printed in the newsletter of the British equivalent of the Workers' Compensation Board. This is a true story. Had this guy died, he'd have walked away with a Darwin Award for sure.

Dear Sir,

I am writing in response to your request for additional information in Block 3 of the accident report form. I put "Poor planning" as the cause of my accident. You asked for a fuller explanation and I trust the following details will be sufficient.

I am bricklayer by trade. On the day of the accident, I was working alone on the roof of a new six-story building. When I completed my work, I found I had some bricks left over, which, when weighed later were found to be slightly in excess of 500 pounds. Rather than carry the bricks down by hand, I decided to lower them in a barrel by using a pulley, which was attached to the side of the building on the sixth floor. Securing the rope at ground level, I went up to the roof, swung the barrel out and loaded the bricks into it. Then I went down and untied the rope, holding it tightly to ensure a slow descent of the bricks.

You will note in Block 11 of the accident report form that I weigh 135 lbs. Due to my surprise at being jerked off the ground so suddenly, I lost my presence of mind and forgot to let go of the rope. Needless to say, I proceeded at a rapid rate up the side of the building. In the vicinity of the third floor, I met the barrel which was now proceeding downward at an equally impressive speed. This explains the fractured skull, minor abrasions and broken collarbone, as listed in Section 3 of the accident report form.

Slowed only slightly, I continued my rapid ascent, not stopping until the fingers of my right hand were two knuckles deep into the pulley. Fortunately by this time I had regained my presence of mind and was able to hold tightly to the rope, in spite of the excruciating pain I was now beginning to experience.

At approximately the same time, however, the barrel of bricks hit the ground and the bottom fell out of the barrel. Now devoid of the weight of the bricks, that barrel weighed approximately 50 lbs. I refer you again to my weight. As you might imagine, I begin Rapid descent, down the side of the building. In the vicinity of the third floor, I met the barrel coming up. This accounts for the two fractured ankles, broken tooth and severe lacerations of my legs and lower body.

What Type of Incident Is This?



Review each of the accidents below. Determine the type of incident, who should investigate it, and who should review the accident investigation report.

1. An old outhouse was loaded onto the flat bed trailer for removal to the gravel pit. The load was not centered on the trailer and when tension was released, it rolled off the trailer striking a parked vehicle causing \$6,000.00 damage to the parked vehicle. No injuries reported.
2. A summer volunteer graduate student was injured when a trench collapsed. The park archeologist and his team of summer volunteer graduate students were excavating a Native American village. They were digging several trenches—a 3 foot trench, a 4 foot trench, and a 6 foot trench—into sandy soil. The six foot trench was not shored. The park archeologist and a graduate student were in the bottom in the six foot when a partial collapse occurred on the north side of the trench where the student was working. A large rock with surrounding soil fell on the student, breaking his leg and burying him up to his waist. A confined space rescue team extricated the student and transferred him by MEDAVAC to the hospital. The student spent 5 days at home and eight weeks recovering from the broken leg; the student was able to resume work as the site inventory specialist on the 7th day after the accident.
3. A two wheel dolly was loaded with boxes three feet higher than the level of the rear handles on the dolly in the park warehouse. As the employee who was pushing the dolly went to negotiate a turn, the top two boxes fell off, just missing (by inches) another employee who was in the area.
4. An electrician was injured with a knife while working on a cable. The employee was stripping a 12 gauge copper wire outdoor lighting cable with a well sharpened knife. He was stripping the wire by cutting toward him. The knife slipped caused a one inch laceration to the opposite finger. The employee went to the local health clinic, received 5 stitches, and went back to work that same day.
5. Park Ranger was injured while exiting the speed storage room. She stumbled on the steps leading to the ground. She fell and hit the ground with enough force to leave her slightly disoriented. After about a minute, she was able to pick herself up. She had a slight bruise, a small raised bump below her right knee, and a couple of skinned marks on her knee. She felt that nothing was seriously wrong, and was able to continue with her duties that day after applying first aid to the bum skinned kne

Classification of Incidents

Classification	Description	Who investigates?	What Accident Investigation Report is Required?	Who Reviews the Accident Report?
Incident with Potential	Unplanned "near-miss" event involving National Park Service property, employees, volunteers, contractors, emergency fire fighters, the public or the environment that could have resulted in an injury, illness, or property loss, but did not.	First Line Supervisor	SMIS Entry	Safety Officer Superintendent
Minor Incident/ Accident	First-aid treatment only with no lost-days from work, and/or property damage less than \$2,500, no loss of consciousness.	First Line Supervisor	SMIS Entry	Safety Officer Superintendent
Recordable Accident Level #1	Results in injuries beyond first-aid, but NOT involving loss of consciousness, lost-days away from work, or restricted work activity.	First Line Supervisor	SMIS Entry	Safety Officer Superintendent
Recordable Accident Level #2	Results in injuries beyond first-aid, involving loss of consciousness, lost-days away from work, restricted work activity or transfer from the victim's normal job.	Team headed by Employee's Division Chief or Other Division Chief Assigned to Investigate	Separate written report in addition to SMIS Entry	ARC Superintendent
Significant Property Damage/Operating Loss Incidents (No Injuries)	Accidents that incur property damage but do not involve employee injuries or fatalities are not reportable to OSHA. However, all accidents with property damage of more than \$2,500 but less than \$250,000 shall also be investigated.	Team headed by Employee's Division Chief or Other Division Chief Assigned to Investigate	Separate written report in addition to SMIS Entry	ARC Superintendent
Serious Accidents	Involve a fatality of an employee (temporarys & volunteers), hospitalization of three or more employees from a single occurrence; and/or incidental damage to company property of \$250,000 or more.	Serious Accidents will be investigated by a Serious Accident Investigation Team (SAIT) as required by DM 485, Chapter 7, section 5.8	Formal Report	Regional Director

ACCIDENT ANALYSIS TERMINOLOGY

ACCIDENT - An unplanned event that interrupts the completion of an activity, and that may (or may not) include injury, illness, or property damage. (also - incident, near miss)

ACCIDENT ANALYSIS - The collection of all pertinent information through interviews, past records, on-site inspection, etc. that helps identify all causes of an accident. Part of accident analysis is the determination and implementation of appropriate corrective action.

ACCIDENT ANALYST - Someone who is held responsible for conducting analyses . One who has been trained in the purpose and effective methods of accident analysis.

ACCIDENT RECORDKEEPING - The documentation of recordable accidents as required under federal law. (a.k.a. OSHA recordkeeping)

AGENCY - The object or substance which was directly involved in the accident.

CATASTROPHE - Accidents resulting in one or more fatalities, or the hospitalization of three or more employees.

CHARGE BACK SYSTEM - A department or location is charged a specified amount of the insurance premium based on its percentage of the total incident or accident cost.

CLAIMS MANAGEMENT - The process of maintaining an active role to insure speedy recovery and return to work.

COMPENSATION PAID - The payment of lost wages and benefits, excluding medical, paid to the claimant or claimant's dependent.

DIRECT COST - Wage compensation, benefits, and medical costs paid as the result of an accident.

EMPLOYEE BODY POSITION / ACTIVITY - The body position required by an activity that relates to an accident, injury, or illness.

EMPLOYEE TASK - The specific task performed by the employee.

ERGONOMICS - The science that seeks to adapt work or working conditions to the worker.

EXPENSE - The cost of an accident incurred as a result of damage, repair, outsourcing contracting, production loss.

FACTOR(S) - Any behavior, condition, act, or negligence without which the accident would not have happened, can be simultaneous or sequential.

FIRST AID - The administering of minor medical attention, usually not covered by insurance.

INCIDENT - An unplanned event that interrupts the completion of an activity without directly involving the worker(s). Something that happens as a result of and in connection with something more important.

INDIRECT COST - Costs, other than direct costs, related to an accident, usually not covered by insurance.

MEDICAL EXPENSES - The payment of medical costs related to an accident.

NATURE OF INJURY / ILLNESS - The result of an occupational accident / illness to the physical condition or health of the worker. (examples: amputation; fracture; strain; sprain; carpal tunnel syndrome)

NEAR-MISS - An unplanned event that interrupts the completion of an activity which directly involves the worker(s).

OCCUPATIONAL ILLNESS - Any abnormal condition or disorder caused by exposure to environmental factors associated with employment, whether due to acute (short) or chronic (long) exposures.

OCCUPATIONAL INJURY - An injury which results from an exposure involving an incident in the work environment.

OPERATION LOCATION - Where the work is being performed.

OPERATION TASK - The specific operation being performed.

OUTSOURCING CONTRACTING - Outsourcing work requiring specialized skills such as repairing underground utilities or electrical work.

PART OF BODY AFFECTED - Exact area of the body damaged as the result of an occupational injury / illness. (examples: right eye, left leg, multiple body parts)

PRE-ACCIDENT PLAN - An existing plan of action set up to respond in the event of an accident. Elements of such a program include:

- an alarm system to warn other employees;
- procedures to save lives directly involved with the accident scene (i.e. first aid, transfer to medical facility);
- procedures for protecting lives or property from further loss;
- procedures to assure timely analyses ; and
- (suggested) procedures to provide assistance to employees suffering reaction to an accident - employee assistance program

PRECEDING SITUATION OR EVENT - Important event(s) occurring just prior to an accident injury, or illness. These may be considered as triggering events, situations, or circumstances necessary for the accident to occur.

PRODUCTION LOSS - Examples are damaged machinery, equipment, tools out of service, damaged product, disrupted project schedule.

RECONSTRUCT - To recreate, using available evidence, events and conditions leading to and including the accident. This will help identify the cause or causes of the accident. Special precautions should be taken to prevent the accident from being repeated.

RESERVES - The total amount of money set aside to pay future medical and /or compensation awards over the life of the claim.

SUPERVISION - The management of a company, or a designated representative.

TEMPORARY WORKER REPLACEMENT - Replacing the injured worker with a temporary worker, or breaking in a new worker.

TIME LOSS MEASUREMENT - The time away from the job, computed in days, hours, and minutes. Minutes are recorded in 15-minute increments, such as 15 minutes, 30 minutes, 45 minutes, and 60 minutes, which would roll over to the hour.

TYPE OF ACCIDENT - The general type of accident that occurred. (examples: fall to the same or different level; caught in, on, or between; struck by; strike against)

WAGE - Payment for services to a worker. Examples could be hourly, daily, weekly, monthly, or by the piece.

WITNESS - A person who can contribute information about an accident. Someone involved in the chain of events leading to an accident, someone involved in the post-accident scene, or others who perform the same job, as examples.