



BC Forest Safety

Part of the BC Forestry Sector

Basic Incident Investigation

Participant Manual - v. 1.5

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ABOUT THIS COURSE

The Basic Incident Investigation course provides supervisors, safety coordinators and others working within the forest industry with an understanding of the methods and tools employed to conduct effective basic incident investigations.

This course provides a level of knowledge required to lead an incident investigation that identifies causes and drives effective corrective or preventive actions.

The forestry Serious Incident and Fatality Investigation online course is another offering by the BC Forest Safety Council. The advanced course provides the level of detail required to lead complex investigations into incidents with serious potential consequences, and the role of other authorities in such investigations.

Trainer's Name:

Phone Number:

Email:

MY GOALS

What do I hope to gain from my participation in this course?

COURSE OBJECTIVES

When you complete this course, you will be able to:

- *Discuss the reasons for and value of conducting incident investigations.*
- *Prepare for and conduct effective incident investigations.*
- *Identify causes for incidents.*
- *Develop effective corrective actions.*
- *Follow-up on the results of investigation corrective actions.*

WHY INVESTIGATE?

Investigations and Incident Reduction

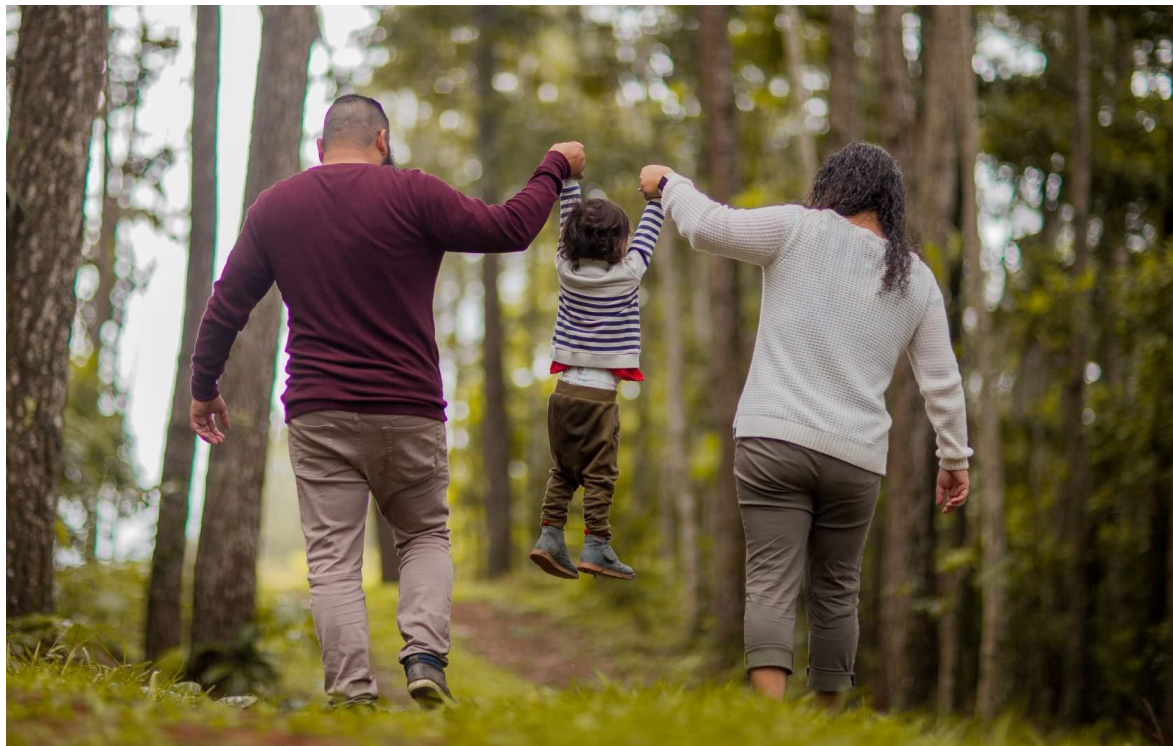


Remember:

- Conducting investigations and developing corrective actions at the close call level (incidents with no visible injury or damage) will lead to changes that may prevent future incidents at all levels.

Doing the Right Thing

What are some of the reasons that make conducting incident investigations the 'right' thing to do?





VIDEO: Safety is Personal: An Employer's Story.

Answer these questions:

What were the costs associated with this incident? Who was affected?

Why isn't it enough to just have a safety manual?

Doing What’s Good for Business

What are the costs of incidents?

Circle the costs above that you think are most significant for your company.

Doing What's Good for Business - Direct and Indirect Costs of Incidents



How Claims affect WorkSafeBC Ratings and Premiums



See below for an example of the worst and best case scenarios. (NOTE: Annual premium calculated based on \$5 premium per \$100 of assessable payroll.)

	Scenario 1 (few injuries)	Scenario 2 (many injuries)
Annual payroll	100,000	100,000
Annual premium	-5,000	-5,000
Max. merit of 50% annual premium payment	+2,500	N/A
Max. demerit of 100% annual premium payment	N/A	-5,000
TOTAL PREMIUM (w/merit or demerits applied)	-2,500	-10,000



WHEN TO INVESTIGATE

Legislative and Regulatory Framework

Guidelines - Workers Compensation Act - Employer Accident Reporting and Investigation

G-P2-68-1 WorkSafeBC notification of serious injuries

Regulatory excerpt

Section 68 of the Workers Compensation Act ("Act") states:

68(1) An employer must immediately notify the Board of the occurrence of any accident that

(a) resulted in serious injury to or the death of a worker,

(b) involved a major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system or excavation,

(c) involved the major release of a hazardous substance,

(d) involved a fire or explosion that had a potential for causing serious injury to a worker, or

(e) was an incident required by regulation to be reported.

Purpose of guideline

The purpose of this guideline is to set out what WorkSafeBC considers to be a "serious injury," which an employer would be required to report to WorkSafeBC.

What employers must report

Section 68 provides that employers must immediately report:

- Any incident that kills or seriously injures a worker
- A major leak or release of a dangerous substance
- A major structural failure or collapse of a structure, equipment, construction support system, or excavation
- A fire or explosion that had a potential for causing serious injury to a worker
- Any blasting accident that results in injury, or unusual event involving explosives (required by regulation)
- A diving incident that causes death, injury, or decompression sickness requiring treatment (required by regulation)

Such incidents must also be investigated by the employer under section 69.

"Serious Injury"

Section 68 provides that employers must notify WorkSafeBC of an accident that resulted in the "serious injury" or death of a worker. The term "serious injury" is not defined in the Act.

A serious injury is any injury that can reasonably be expected at the time of the incident to endanger life or cause permanent injury. Serious injuries include both traumatic injuries that are life threatening or that result in a loss of consciousness, and incidents such as chemical exposures, heat stress, and cold stress which are likely to result in a life threatening condition or cause permanent injury or significant physical impairment.

Traumatic injuries that should be considered "serious injuries" include:

- Major fractures or crush injuries, such as
 - A fracture of the skull, spine, or pelvis
 - Multiple, open or compound fractures, or fractures to major bones such as the humerus, fibula or tibia, or radius or ulna
 - Crushing injuries to the trunk, head or neck, or multiple crush injuries
- An amputation, at the time of the accident, of an arm or leg or amputation of a major part of a hand or foot
- Penetrating injuries to eye, head, neck, chest, abdomen, or groin

- An accident that caused significant respiratory compromise, or punctured lung
- Circulatory shock (i.e., internal hemorrhage) or injury to any internal organ
- Lacerations that cause severe hemorrhages
- All burns that meet the rapid transport criteria of the Occupational First Aid Training Manual, including
 - Third degree burns to more than 2% of the body surface
 - Third degree burns to the face, head, or neck
 - Burns of any degree with complications
- An asphyxiation or poisoning resulting in a partial or total loss of physical control (i.e., loss of consciousness of a worker in a confined space) or a respiratory rate of fewer than 10 breaths per minute or severe dyspnea (difficult or laboured breathing)
- Decompression illness, or lung over-pressurization during or after a dive or any incident of near drowning
- Traumatic injury which is likely to result in a loss of
 - Sight
 - Hearing
 - Touch

Injuries that require a critical intervention such as CPR, artificial ventilation or control of hemorrhaging or treatment beyond First Aid, such as the intervention of Emergency Health Services personnel (e.g. transportation to further medical attention), a physician and subsequent surgery, or admittance to an intensive care unit should also be considered "serious injuries."

"Major Release of a Hazardous Substance"

Section 68 provides that employers must notify WorkSafeBC of any accident that involved the major release of a hazardous substance. The term "major release of a hazardous substance" is explained in Policy Item P2-68-1.

A major release does not only mean a considerable quantity, or the peculiar nature of the release, such as a gas or volatile liquid, but, more importantly, the seriousness of the risk to the health of workers. Factors that determine the seriousness of the risk include the degree of preparedness of the employer to respond to the release, the necessity of working in close proximity to the release, the atmospheric conditions at the time of the release and the nature of the substance.

"Immediately"

Employers are required to report serious injuries and fatalities to WorkSafeBC immediately. This reporting should occur as part of the employers' response at the time of the incident. In responding to the incident, employers should ensure any workplace conditions that present an immediate hazard to other workers are addressed, ensure first aid and medical treatment for the worker, and then notify WorkSafeBC of the incident.

The purpose of the reporting requirement in section 68 is to ensure that a WorkSafeBC prevention officer and/or an investigations officer is able to respond to the incident, as soon as possible, in order to:

- Attend at the scene to conduct an investigation of the incident and ensure the integrity of the scene
- Offer availability of counseling services, as appropriate
- Undertake an inspection of the workplace to help ensure that workers are protected before work is resumed
- Help ensure that any post-incident response or cleanup is performed in a safe manner
- Provide a referral to compensation services

The requirement to immediately report a serious injury or fatality is separate from the requirement to report injuries for claims purposes. Filing a Form 7 will not satisfy the obligation to immediately report a serious injury or fatality.

Failure to immediately notify WorkSafeBC of a serious injury or fatality will be considered a breach of section 68 of the Act, and may result in an administrative penalty.

To report a serious incident or fatality, phone 604.276.3100 (Lower Mainland) or 1.888.621.7233 (1.888.621.SAFE) (24 hours a day, 7 days a week).

WorkSafeBC Notification

Immediately notify WorkSafeBC once:

- Immediate hazards are addressed
- First aid and medical treatment provided for injured worker

Notify WorkSafeBC using their toll-free number - 1-888-621-SAFE (7233)

Secure Incident Scene

Do not disturb the scene of a reportable incident.

Exceptions:

- When directed by WorkSafeBC or peace officer
- When attending to a person who is injured or killed
- To prevent further injuries
- To protect property that is endangered

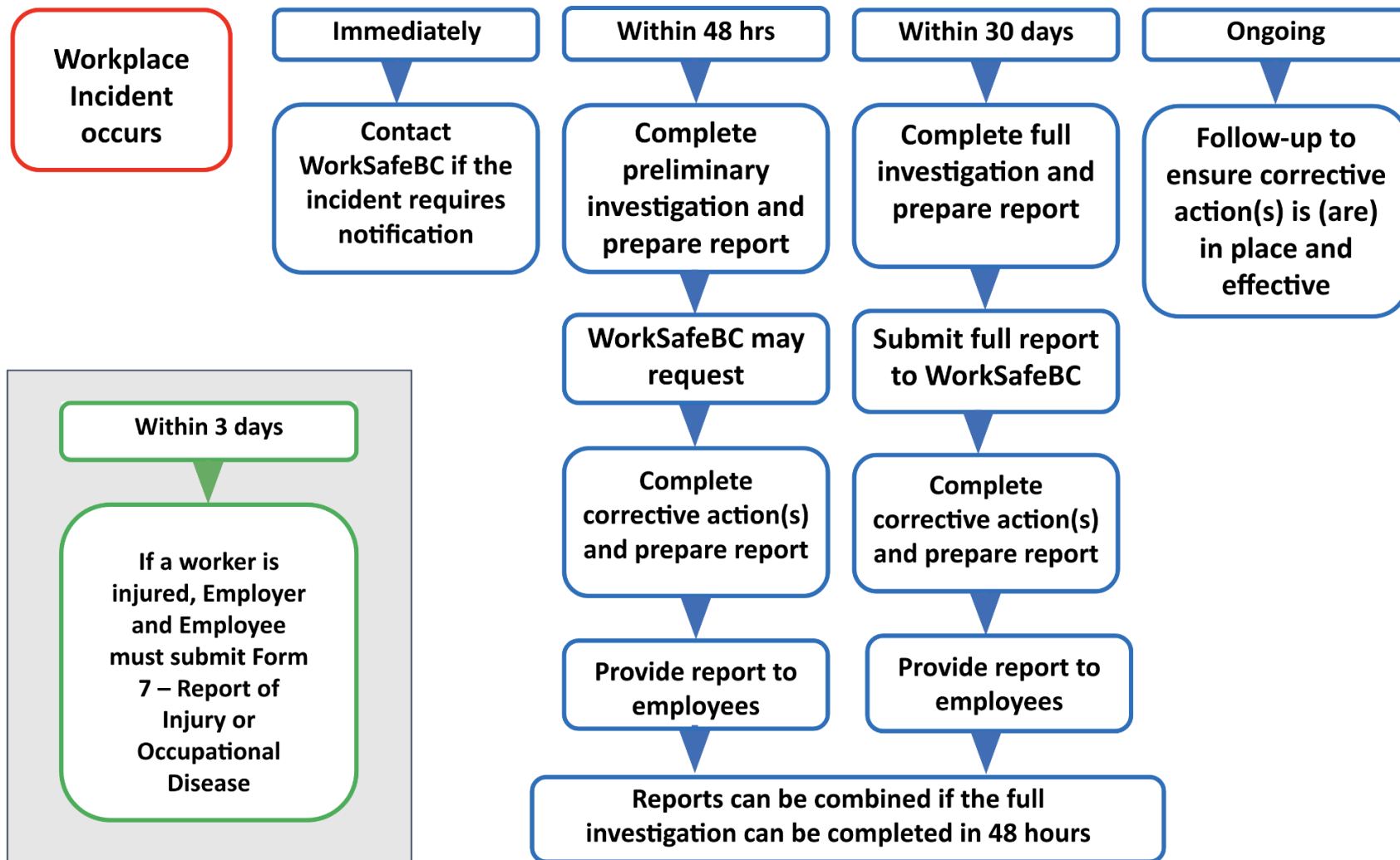


WHAT TO REPORT AND INVESTIGATE

Type of Incident [Reference: Workers Compensation Act Sections 68 and 69]	Report Immediately to WorkSafeBC?	Investigation Required?
Serious injury or death.	Yes	Yes
Major structural failure or collapse.	Yes	Yes
Major release of a hazardous substance.	Yes	Yes
Fire or explosion (with potential for serious injury).	Yes	Yes
A blasting accident causing personal injury.	Yes	Yes
Dangerous accident involving explosives, injury or not.	Yes	Yes
A diving accident, as defined by the OHSR.	Yes	Yes
Minor injury or no injury but had potential for a serious injury.	No	Yes
Injury requiring medical treatment beyond first aid.	No	Yes

How do I decide whether to investigate an incident?

If you decide that an investigation is not required, what are other things you could do?



Other legislative references that apply to specific situations:

Refer to handout: Workers' Compensation Act in the Resources section at the back of this manual and note the legislative references for incident investigations that are required under the Workers' Compensation Act - Division 10 – Sections 68 to 73.

In addition, there are a number of other legislative references that apply to specific situations:

Occupational Health and Safety Regulation

- OHSR 4.26 – Workplace Conduct: Improper Activity & Behaviour.
- OHSR 4.30(3)(d) – Workplace Violence.
- OHSR Section 21.13 – Blasting Incidents – immediately reportable to Board and Investigation required.
- OHSR Section 24.34 - Diving Incidents – immediately reportable to Board and Investigation required

Other agencies with jurisdiction may require reporting or investigations:

- Technical Safety BC
- Ministry of Environment and Transport Canada for certain spill incidents

WorkSafeBC Employer Incident Investigation Report (EIIR – form 52E40)



RESET



Employer Incident Investigation Report (EIIR)

Please refer to the companion [quick guide](#) for assistance completing the investigation and this form. Please attach a separate sheet if necessary

1. Employer's information

Employer's name (legal name and trade name)	Operating location number	WorkSafeBC account number	
Employer's head office address			
City		Province	Postal code
Employer's representative's name	Email address	Phone number (include area code)	

2. Injured persons

Last name	First name	Job title
a)		
b)		
c)		
d)		

Refer to the sample EIIR handout: [Guide to Completing an Employer Incident Investigation Report](#) in the Resources section at the back of this manual.

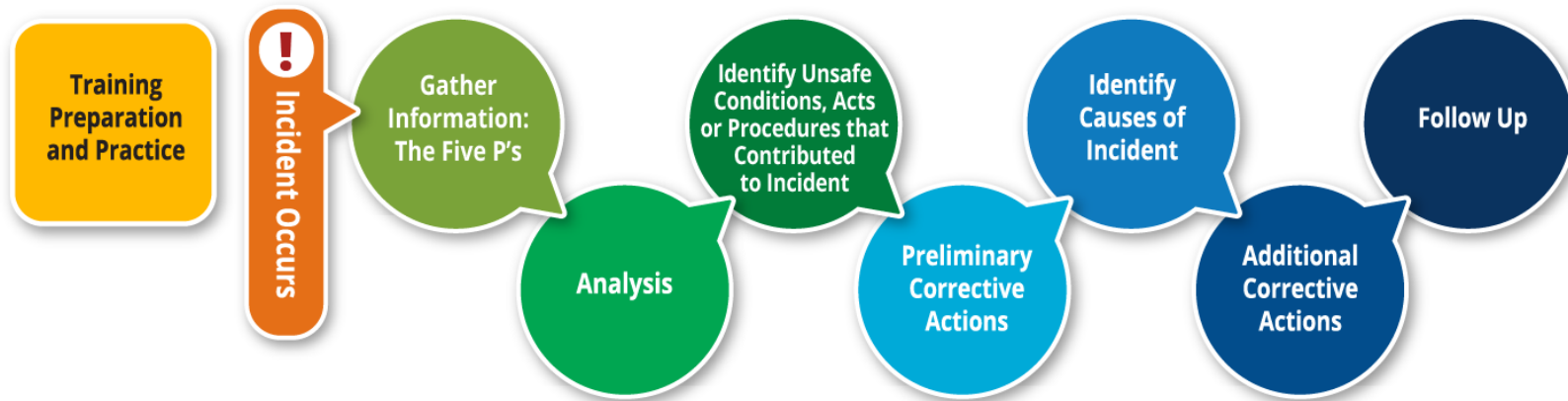
The form is available from: <https://www.worksafebc.com/en/resources/health-safety/forms/incident-investigation-report-form-52e40?lang=en>

Completed full employer Incident Investigation Reports can be sent to WorkSafeBC by:

- Online at the [EIIR upload portal](https://eiirupload.online.worksafebc.com/) - <https://eiirupload.online.worksafebc.com/>
- By fax: 604.276.3247 in the Lower Mainland or toll-free 1.866.240.1434.
- By mail to WorkSafeBC, PO Box 5350, Stn Terminal Vancouver, BC V6B 5L5.

HOW TO INVESTIGATE

Steps of an Investigation using the Incident Investigation Model



Training, Preparation and Practice

Training

What types of training courses or other actions would help myself and others be prepared for an incident investigation, if one is necessary?



Preparation

Useful Investigation Equipment

Items to have when doing an investigation:

- Instructions or a step by step checklist of what to do
- Signs and flagging tape
- Tarp
- Zip lock bags
- Camera and spare batteries
- Measuring tapes
- Paper
- Pens and pencils
- Gloves
- Contact info card
- Flashlight
- Tape
- Utility knife
- Personal Protective Equipment (PPE)

Is there anything else I want to include?

<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

Investigation Team

What key points do I want to remember about my investigation team?

<hr/>
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Preparation

Emergency Response, First Aid and Injury Management

Emergency Response Planning includes:

- First Aid Preparation
- Emergency Drills
- Emergency Response Plans (ERPs).

Are there any actions I need to take in my business in this area?

The **Guide to Creating an Emergency Response Plan**, as well as many other resources, can be found here:

[Emergency Response Planning - BC Forest Safety Council](#)

<https://www.bcforestsafes.org/resource/emergency>

Practice

What are some actions I can take to develop my skills in incident investigations?

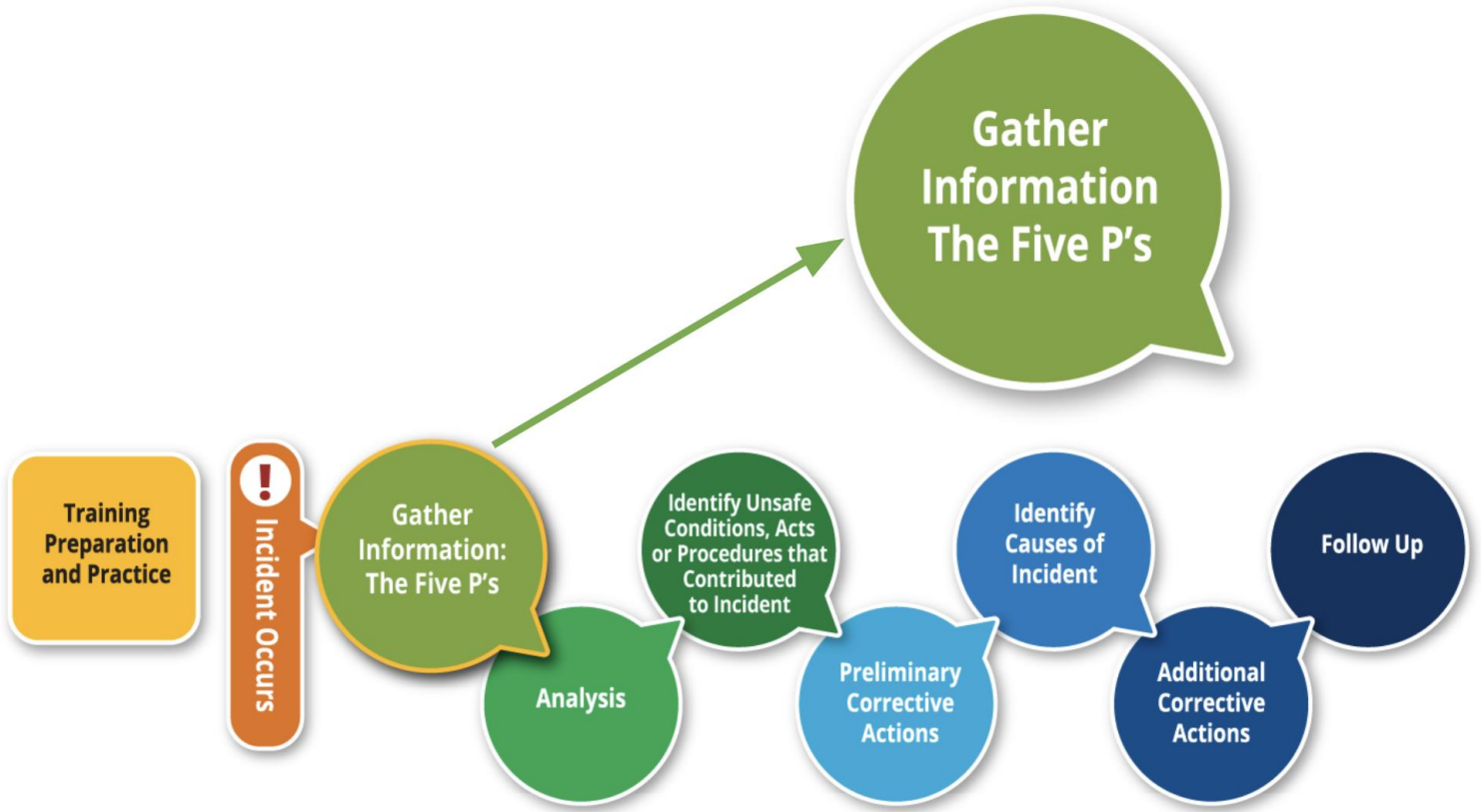
1.

2.

3.

4.

Gather Information: The Five P's



- Position
- People
- Process
- Parts
- Paper

The First P: Position

- The position the worker and equipment were in when the incident occurs.
- Includes the physical environment, and any changes that happened in that environment.
- Physical evidence must be collected before the scene is disturbed by weather or other events.

Position – sample questions

- What were the weather conditions (e.g. - temperature, wind, etc.) at the time of the incident?
- What were the environmental factors (e.g. - noisy, too dark or too bright, etc.) and what impact did they have?
- What toxic or hazardous vapours, gases, dusts, mists, or fumes were present?
- Where was the worker(s) positioned physically before, during and after the incident?
- What escape path did the worker have available to him / her?
- If the incident involved machinery or equipment, what position were the controls of the unit in?
- How did the controls operate - “normally” or did they operate “differently” from other similar equipment / machinery? Were the controls functioning properly?

The Second P: People

- All of the people who may be relevant to the incident, for example:
 - the injured worker
 - other employees with information related to the incident
 - any witnesses
 - the supervisor
 - possibly the manager or the business owner
 - first aid attendants
 - BC Ambulance Attendants
 - technical experts (as applicable)
 - other persons with information (i.e. may not be included in the already listed groups of individuals).

People – sample questions

- What was the worker’s experience with the work being done?
- How were the workers trained?
- What was the worker’s ability to physically do the work?
- What was the status of the health of the workers (e.g. - were they tired, were they under stress, either from work or personal matters, were they impaired)?

Eyewitness Statements

What are the key points I want to remember about collecting eyewitness statements?

1. _____
2. _____
3. _____
4. _____



Interviewing Skills video

**Four Features of Good Interviewing**

Why is it so important?

**Build Rapport**

Key to eliciting good information.

Motivates interviewee to communicate.

Provides a snapshot of the interviewee's ability to communicate.

Four Features of Good Interviewing

How to Build Rapport?



Build Rapport

Minimize authority

Be friendly and attentive.
Convey understanding.

Informal and relaxed
environment

Purpose of the investigation:
safety not blame.

Four Features of Good Interviewing



Clear description of the interviewer's investigative needs

Shatter expectations
about the interview

You are there to listen NOT
to ask questions

"This interview is unlike any one
you have had before"

"Tell me even if you think I know
already"

Four Features of Good Interviewing



Open-Ended Questioning

Ask mainly open-ended questions – this is surprisingly hard to do!

Interested in knowing more, ask open-ended until you reach a close ended.

“you mentioned....tell me more about that”

Avoid interrupting the witness

Four Features of Good Interviewing

Benefits



Open-Ended Questioning

Responses are more accurate than close-ended.

Interviewee and interviewer have limited mental resources.

Open-ended questions:

- provide less distraction for the interviewee,
- limits mental fatigue of the interviewer.

Four Features of Good Interviewing



Willingness to explore alternative hypotheses

Having a theory of what caused the event could result in overly targeted information collection.

Confirmation Bias/Tunnel Vision

A tendency to seek or interpret evidence in ways that support existing beliefs, expectations, or hypotheses.

Considering alternatives can mitigate the effect of preconceived ideas.

Interviewing Skills Summary

Rapport	Communicate Expectations	Open-ended Questioning	Consider Alternatives
Minimize authority.	Your job is to listen, not to ask questions.	“You mentioned ...tell me more about that”.	What happened in the event?
Be friendly and attentive.	“This interview is unlike any one you have had before”.	Avoid interrupting the witness.	What are <i>all of the factors</i> that could have caused this event?
	“Tell me even if you think I know already”.		

Important: Do not rush the interview process, take your time developing rapport before starting to question the witness.

CLOSED Ended Questions

OPEN Ended Questions

- | | |
|--|--|
| <ul style="list-style-type: none"> • Was he wearing all his PPE? • Was he <u>near</u> you on the line? • Did you hear the tree falling? • Did the crew assess the hazards this morning? • Did you guys get enough rest last night? • Does someone check on you guys regularly? | <ul style="list-style-type: none"> • What types of PPE did he have or • Describe where he was working. • Tell me about what you heard. • Describe the hazard assessment process that happened today. • Tell me about what you guys did last night. • Explain / describe the check in procedures for the day. |
|--|--|

• **Develop questions IN ADVANCE. Doing interviews takes PRACTICE!**

What are the key points I want to remember about conducting interviews?

The Third P: Process or Procedures

- The work processes or procedures that were being followed at the time of the incident

Upset Conditions:

- Refers to something that is occurring that is out of the ordinary with the work process (e.g.: a piece of equipment is broken down, or the weather conditions are poor)

Process - sample questions

- How experienced was the worker involved - experienced with the process, new to the process, or somewhere in between?
- What upset condition(s) were there at the time of the incident?
- What safe work procedures (SWPs) had been established?
- When were the SWPs communicated to the workers involved?
- When was the SWP last reviewed?
- How was the SWP being followed?
- What conditions may have changed to make the normal procedure unsafe?
- What changes may have been made to the process? When was the SWP updated?
- How adequate and effective was the SWP?
- What needs to be revised or updated in the SWP?



The Fourth P: Parts

- The equipment and materials being used at the time of the incident.

Parts - sample questions

- What equipment, tools and/or materials were available to the workers?
- Was the equipment, tools and/or materials appropriate for the job?
- How were the equipment, tools and/or materials being used?
- Was the correct equipment, tools and/or materials being used in a safe manner (i.e. according to the manufacturer's instructions)?
- What safety devices were available, how were they being used, and were they working properly?
- What lockout, if necessary, was being used at the time of the incident?
- Was there an equipment, machinery or tool failure?
- What caused the equipment, machinery or tool to fail?
- How was the equipment, machinery or tool designed?
- How were recommended maintenance procedures followed?
- What other similar previous failures may have been experienced with the equipment, machinery, or tool?
- Had the broken or failed part been replaced previously? Was it an OEM part or cheaper replacement, even fabricated or jerry-rigged?
- What hazardous substances were involved?
- How were any hazardous substances identified?
- What other less hazardous or alternative substances were possible or available?
- What personal protective equipment (PPE) was used?
- How appropriate was the PPE used for the work?
- What was the workers training in the use of their PPE?
- What condition was the PPE in?

Remember:

- Each time the answer to a question reveals an unsafe condition or unsafe act, it is important to determine why this situation was allowed to exist.

The Fifth P: Paper

- The documents and records that make up part of the safety program for the workplace

- May provide insights into some of the contributing factors of an incident.

Paper – sample questions

- What workplace safety rules were communicated to all workers? How well were they understood?

- What written safe work procedures were available?

- What orientation was provided for the involved worker(s)? Was this documented?

- What hazards had been previously identified and documented?

- Once the hazards had been identified, what Risk Assessment was conducted?

- Who completed the Risk Assessment - a qualified individual?

- Were the results of the Risk Assessment accurate / reasonable / realistic?

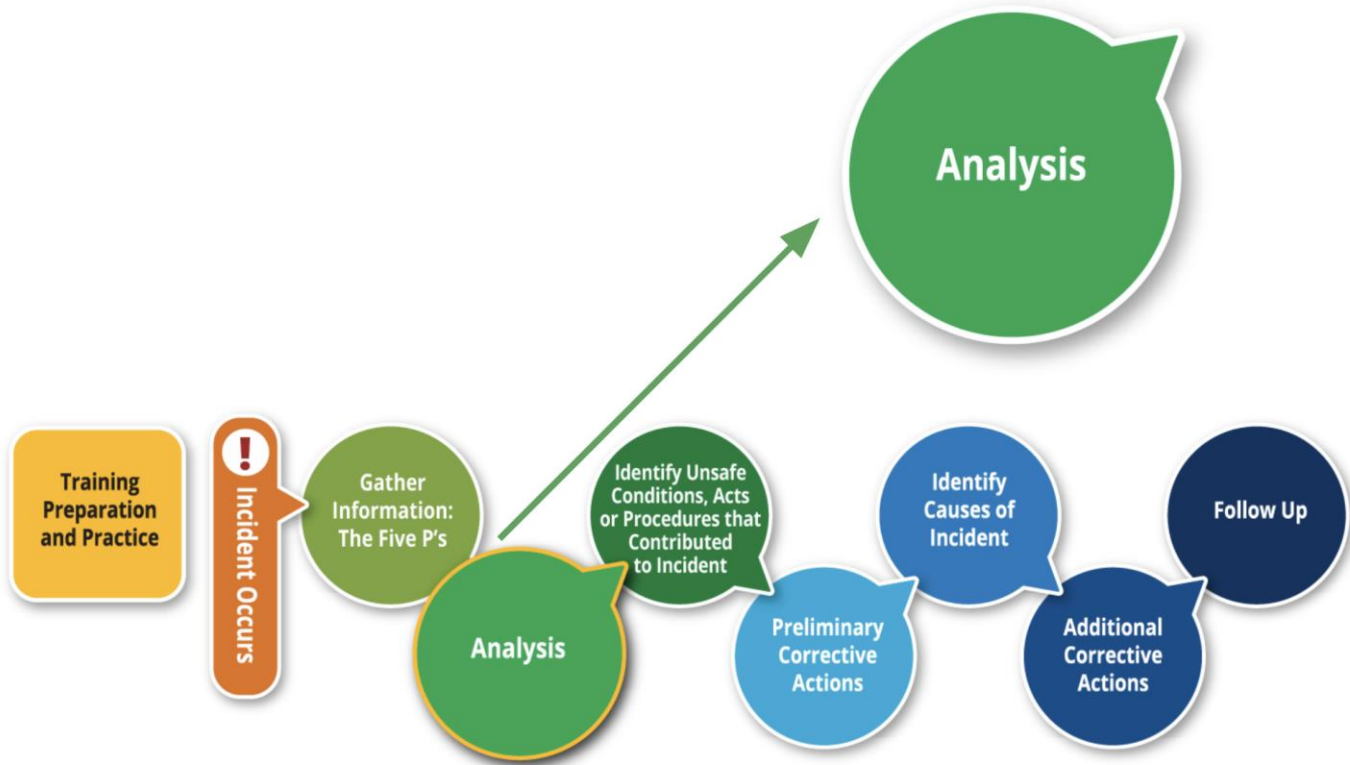
- What procedures had been developed to overcome any hazards? Was this documented?

- When were those procedures implemented - prior to the incident?

Other information sources for investigations:

- | | |
|----------------------------------|--------------------------------------|
| ● Inspection reports | ● Material Safety Data Sheets (MSDS) |
| ● Previous investigation reports | ● Industry standards |
| ● Worker assessments | ● Legislation and regulations |
| ● Journal notes | ● Safe Work Procedures |
| ● First aid records | ● Operating manuals |

Analysis



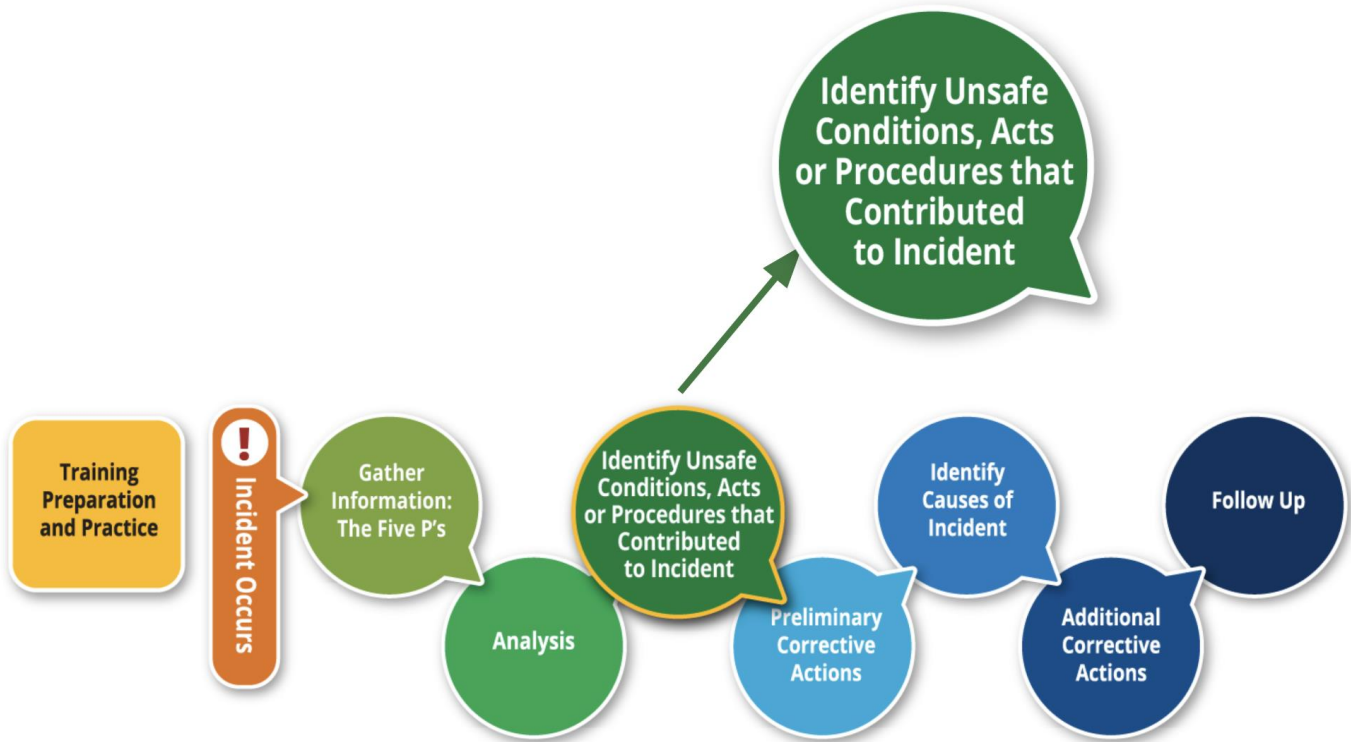
Sequence of events

Why is it important to be certain of the exact sequence of events?

Critical Thinking and Objective Analysis

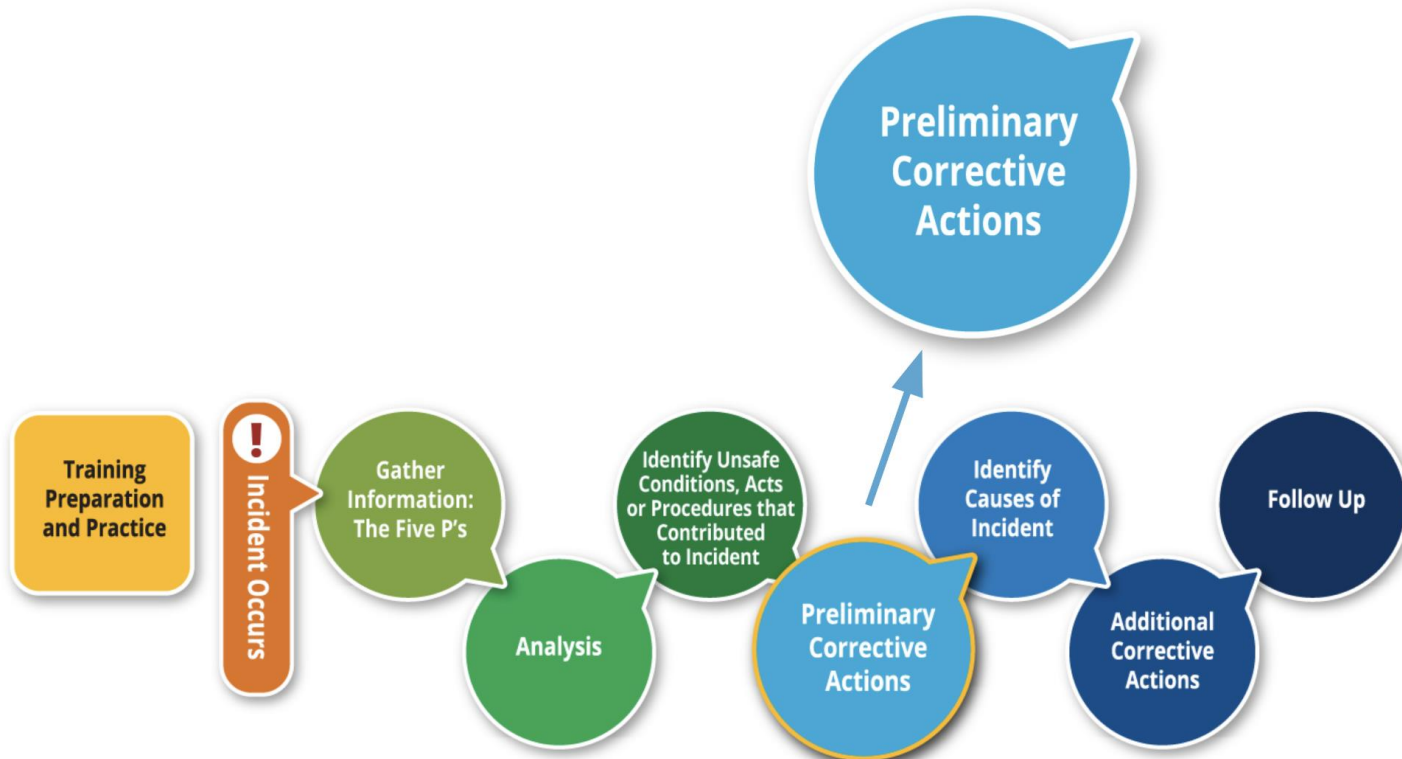
Why is critical thinking important?

Identify Unsafe Conditions, Acts, or Procedures that Contributed to the Incident



Describe anything or the absence of anything that contributed to the incident. To do this, ask yourself why this incident happened? What was the sequence of events? Why did each event happen? Avoid stopping at personal factors such as “the worker was careless.”

Preliminary Corrective Actions



Preliminary Corrective Actions are recommendations intended to fix the conditions, acts or procedures that contributed to the incident. These are preliminary actions that can be taken in the first 48 hours after the incident. Longer term corrective actions will be identified during the full investigation.

What are key characteristics of good effective corrective actions, or recommendations?

S

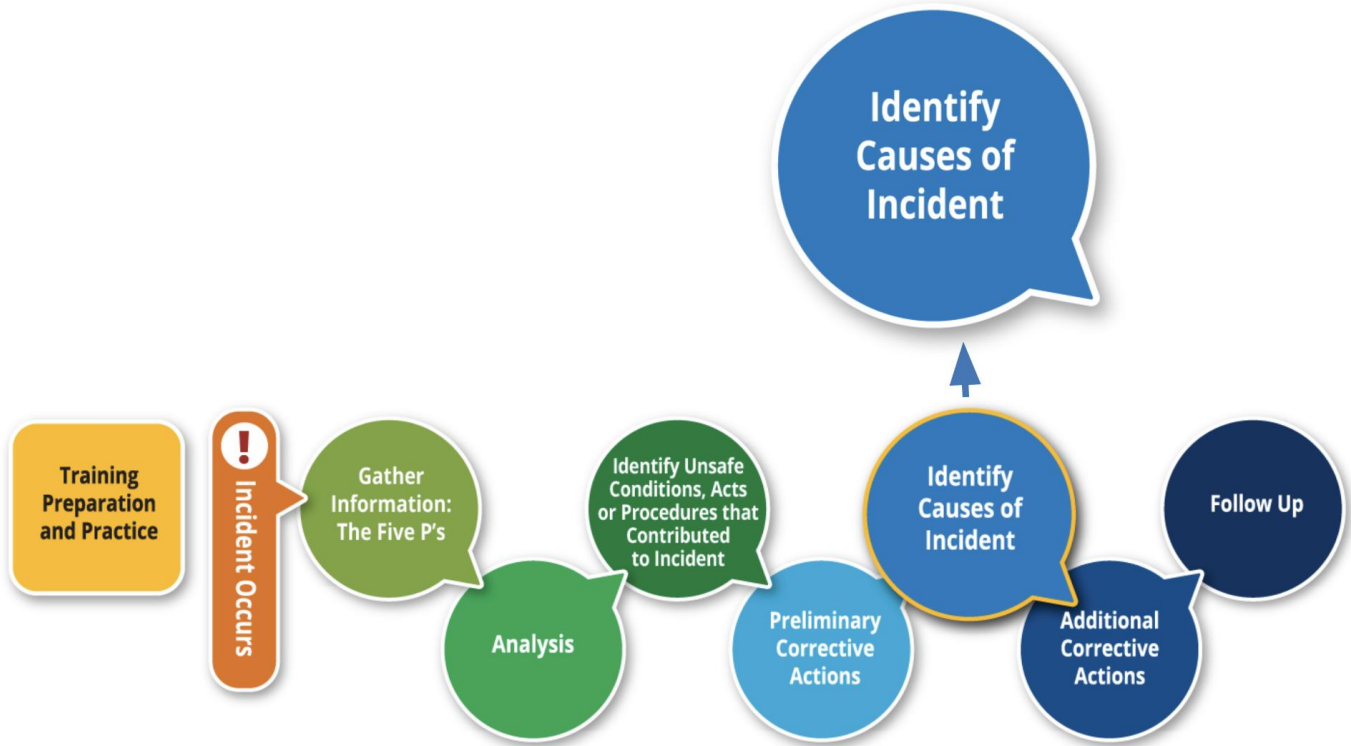
M

A

R

T

Identify Causes of the Incident



Activity

Use the cause definition sheet to determine the cause for the following situations:

A new piece of equipment has been purchased and used in the operation. Safe Work Procedures have not been developed for using it and a worker is injured while using it.

Worker is distracted by a stressful situation at home and misses spotting a hazard at work.

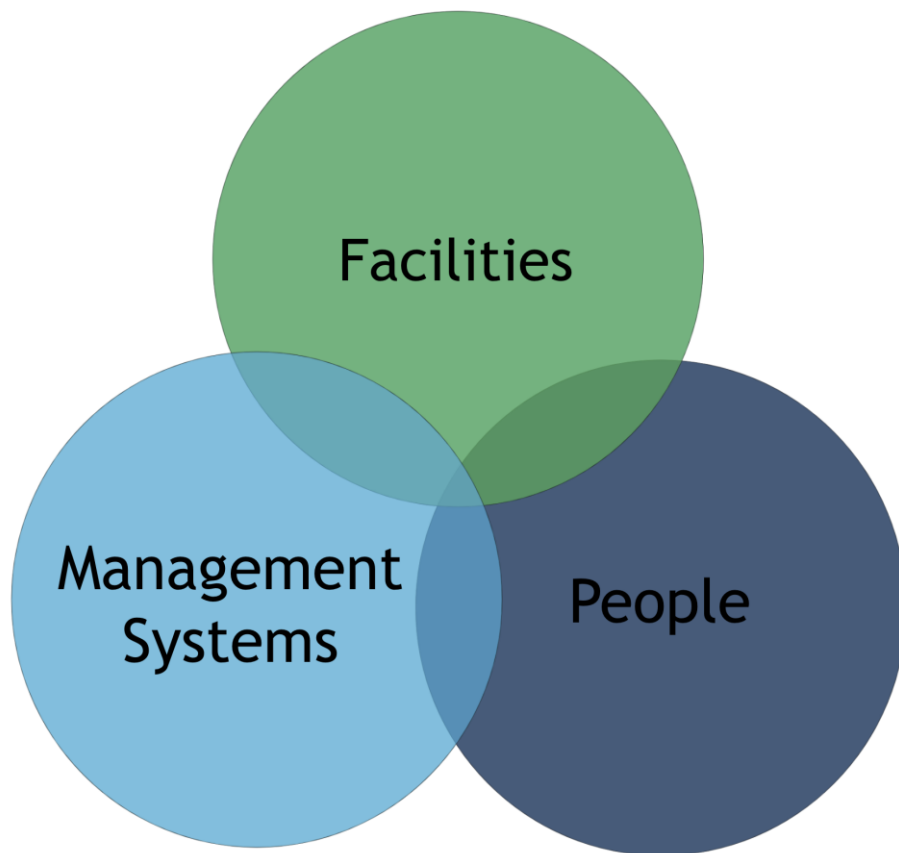
The 5 W's + 1H Questions

Who, what, when, where, why and how

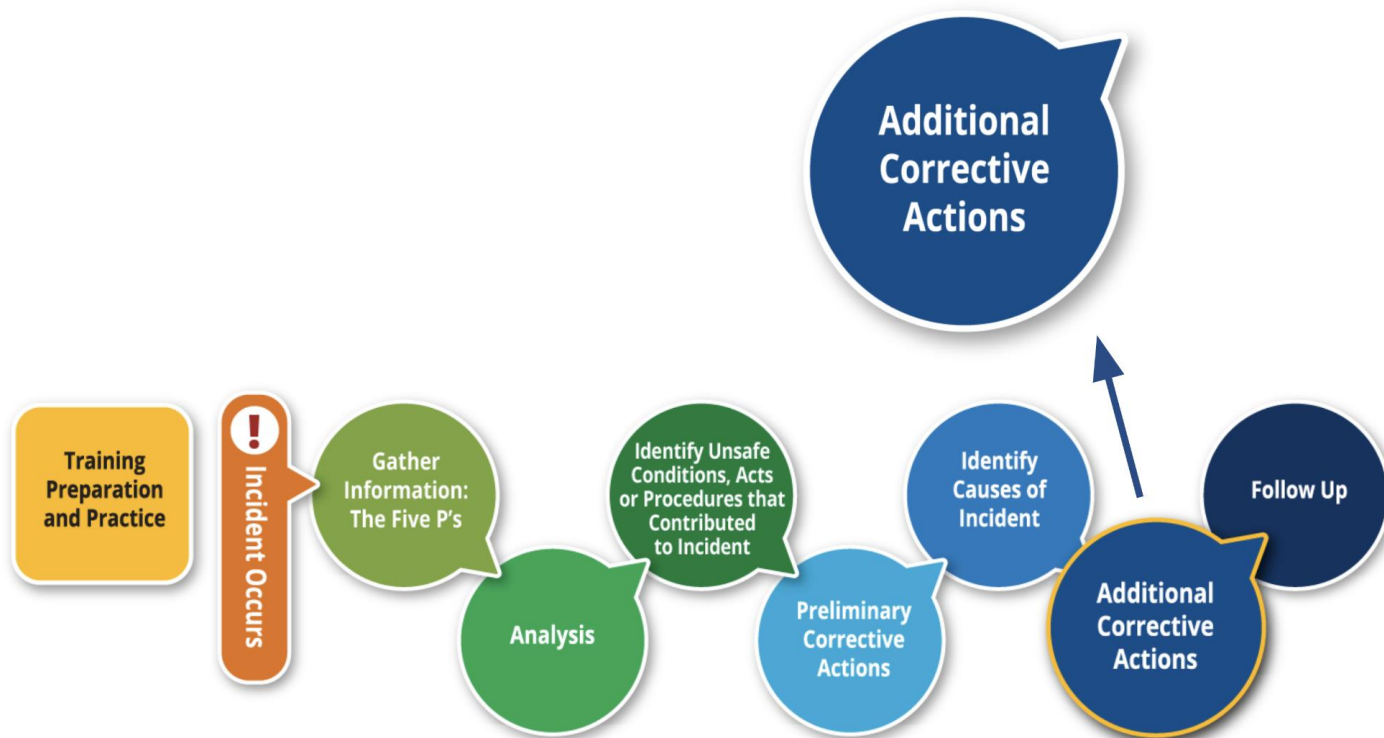
- Discover **who** was involved (injured person, witnesses)
- Discover **what** happened and when (the sequence of events)
- Discover **how** it happened (unsafe conditions, acts, or procedures)
- Discover **why** it happened (the causes of the incident)
- Discover **what** can be done (correction actions or recommendations) to prevent it from happening again.

Human Factors

What are some important human factors that need to be considered in determining causes?



Additional Corrective Actions



Additional corrective actions are needed to address the causes of the incident that are identified. These are actions to fix the deeper underlying causes and often take a longer time to implement. The Corrective Action Log (CAL) is a good way to track these actions.

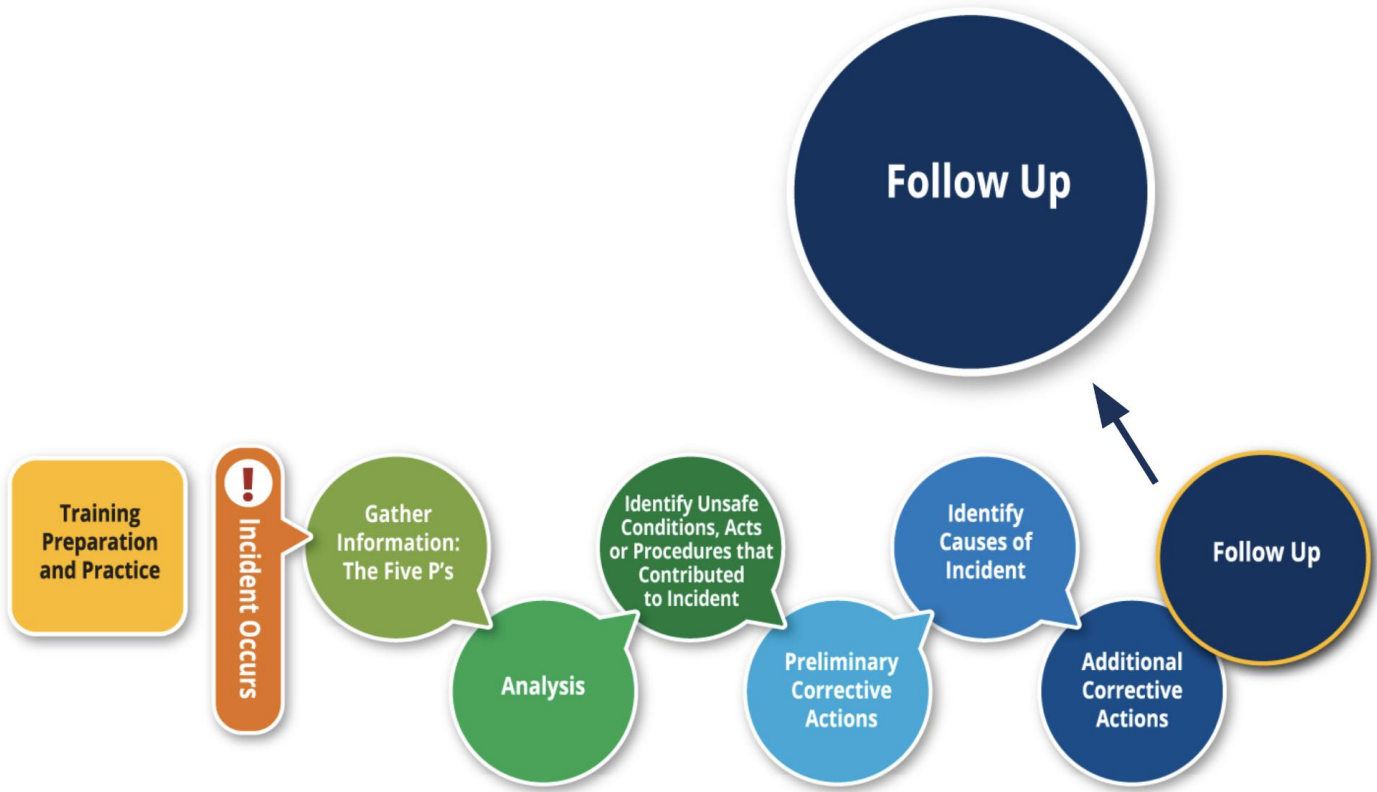
ACTIVITY – Incident Investigation Form Comparison

Review Example A incident investigation form and then compare it to Example B.

These forms are attached as handouts: Example A and Example B in the Resources section at the back of this manual.

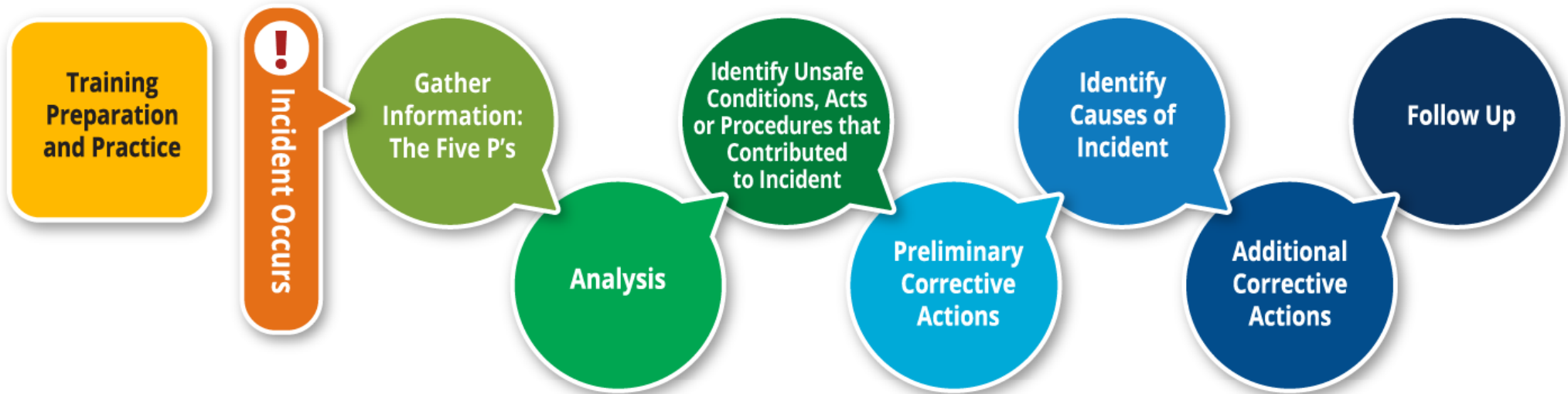
<u>Example A</u>	<u>Example B</u>

Follow-up





Incident Investigation Model Summary



What you are going to take on in your operations after this course.



BC Forest Safety

Safety is **good** business

Have a safe day!

